ORDER NO.AD8805088C9

Service Manual

Amplifier

Stereo Integrated Amplifier

SU-V650

Technics
Stereo Integrated Amplifier SU-V650
class AA
VC-4

Color

(S) ....Silver Type	
(K) ....Black Type	

Area

Color	Area
(S)(K)	(E) ....Continental Europe.
(S)(K)	(Ei) ....Italy.
(S)(K)	(EG).........F.R.Germany.
(S)(K)	(EB).........Belgium.
(S)(K)	(EK).........United Kingdom.
(S)(K)	(EF) ....France.
(S)(K)	(EH).........Holland.
(S)(K)	(XL) ....Australia.
(S)(K)	(XA).........Asia,Latin America, Middle Near East, Africa and Oceania.
(S)(K)	(PA).........Far East PX.
(S)(K)	(PE) ....European Military.

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz ~ 20 kHz continuous power output	
both channels driven	2 x 90 W (8Ω)
1 kH continuous power output	
both channels driven	2 x 140 W (4Ω) 2 x 100 W (8Ω)
Total harmonic distortion	
rated power at 20 Hz ~ 20 kHz	0.002% (8Ω)
rated power at 1 kHz	0.005% (4Ω) 0.0009% (8Ω)
half power at 20 Hz ~ 20 kHz	0.002% (8Ω)
half power at 1 kHz	0.002% (4Ω) 0.0008% (8Ω)
Intermodulation distortion	
rated power at 50 Hz:7 kHz = 4:1,SMPTE,8Ω	0.005%
Power bandwidth	
both channels driven,-3dB	5 Hz ~ 50 kHz (8Ω,0.03%)
Residual hum and noise	0.8 mV
Damping factor	40 (4Ω),80 (8Ω)
Input sensitivity and impedance	
PHONO MM	2.5mV/47 kΩ
MC	170 μV/220 Ω
TUNER,CD,AUX,TAPE 1/DAT	
TAPE 2/EXT	150mV/22 kΩ
PHONO maximum input voltage (IHF'66 1 kHz,RMS)	
MM	160 mV
MC	12 mV
S/N	
rated power(4Ω)	
PHONO MM	78 dB (IHF'66 : 86 dB)
MC	65 dB (IHF'66 : 68 dB)
TUNER,CD,AUX,	
TAPE 1/DAT, TAPE 2/EXT	92 dB (IHF'66 : 100 dB)
-26 dB power (4Ω)	
PHONO MM	69 dB
MC	65 dB
TUNER,CD,AUX,	
TAPE 1/DAT, TAPE 2/EXT	70 dB
50 mW power (4Ω)	
PHONO MM	62 dB
MC	61 dB
TUNER,CD,AUX,	
TAPE 1/DAT, TAPE 2/EXT	63 dB
Frequency responce	
PHONO	RIAA standard curve ± 0.8dB(30 Hz ~ 15 kHz)
TUNER,CD,AUX,	
TAPE 1/DAT, TAPE 2/EXT	3 Hz ~ 100 kHz (-3 dB) +0, -0.2 dB (20 Hz ~ 20 kHz)
Tone controls	
BASS	50 Hz, +10 dB ~ -10 dB
TREBLE	20 kHz, +10 dB ~ -10 dB
Subsonic filter	20 Hz,-6 dB/oct.
Loudness control (volume at -30 dB)	50 Hz, +9 dB
Output voltage	
TAPE 1/DAT, TAPE 2/EXT REC OUT	150 mV
Channel balance, AUX 250 Hz ~ 6,300 Hz	±1 dB
Channel separation, AUX 1 kHz	50dB
Headphones output level and impedance	635 mV/330 Ω
Load impedance	
MAIN or REMOTE	4 Ω ~ 16 Ω
MAIN and REMOTE	8 Ω ~ 16 Ω

■ GENERAL

Power consumption	670 W
Power supply	
For United Kingdom and Australia	AC 50 Hz/60 Hz, 240 V
For continental Europe	AC 50 Hz/60 Hz,220 V
For others	AC 50 Hz/60 Hz, 110 V/127 V/220 V/240 V
Dimensions (W x H x D)	430 x 159 x 363 mm (16-15/16" x 6-1/4" x 14-1/4")
Weight	10.1 kg (22.2 lb.)

Notes:

1.Specifications are subject to change without notice. Weight and dimensions are approximate.

2.Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Technics

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■ BEFORE REPAIR AND ADJUSTMENT

(1) Turn off the power supply. Using a 10Ω, 10W resistor, shortcircuit both ends of power supply capacitors (C705,C706)in order to discharge the voltage.

(2) Before turning on the power switch of the unit.

A. Connect the voltage controller to the primary side.

B. Connect the AC ampere meter to the primary side or connect the DC voltage meter to the "±B" circuit of the secondary side.

C. Turn the VR of ICQ(VR401 and VR402)to minimum(counterclockwise).

D. After setting the output to zero of the voltage contoller,turn on the power switch of the unit. And increase the output of voltage controller gradually.
Then, check carefully whether the current value of primary side become more than following value or whether the DC voltage of secondary side is increasing slowly.

E. If the value of current is increasing unusually or the DC voltage is not increasing,lower the output level of voltage contoller immediately.

● The current value of the primary side at no signal. (Confirm the power supply voltage of each area and provided voltage of the unit.)

Power supply voltage	AC110V	AC127V	AC220V	AC240V
Consumed current 50/60Hz	280 ~ 560mA	260 ~ 520mA	140 ~ 280mA	130 ~ 260mA

■ PROTECTION CIRCUITRY

The protection circuitry of the amplifier may have operated if either of the following conditions is noticed:

- ● No sound is heard when the power is turned on.
- ● Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted" , or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

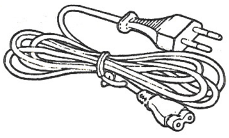
If this occurs, follow the procedure outlined below:

1.Turn off the power.
2.Determine the cause of the problem and correct it.
3.Turn on the power once again.

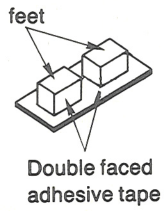
Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ ACCESSORIES

●AC power supply cord 1
(SJA168) .... For (XA), (PA) and (PE) areas.
(SJA173) .... For (XL) area only.
(SJA193) .... For (EK) area only.
(SFDAC05E03) .... For others.



●Feet 2
(SKL 312)



LOCATION OF CONTROLS

●Subsonic filter switch (subsonic filter)

off (▄ _ █): Set to this position for ordinary use.

20 Hz (█ _ ▄): Set to this position to eliminate ultra-low-frequency noise such as motor "rumble" and unusual vibration of the woofer cone caused by a warped disc, etc.

●Operation indicators (amplifier operation monitor)

This indicator illuminates to indicate the operating condition of this unit.

voltage control:
When the power is switched ON, this indicator illuminates when the unit is in the operation condition.

current drive:
When the power is switched ON, this indicator illuminates after about 4 seconds when the unit is in the operation condition. If an abnormal condition in the circuitry is detected, such as DC voltage appearing in the output, or a short-circuit of the positive (+) and negative (−) wires from the speaker terminals, the protection circuit functions and this indicator does not illuminate. If this occurs, switch the power OFF, find the cause of the trouble and correct it, and then switch the power ON once again.

●Balance control (balance)

This control is used to adjust left/right volume balance.

●Tone controls (bass/treble)

The bass control is for the low-frequency sound range, and the treble control is for the high-frequency sound range.

●Power switch (power)

●Tone control switch (tone control)

This switch is used to switch the tone control circuit (bass, treble) ON or OFF.

defeat (▄ _ █):
Set to this position to turn the bass/treble tone control circuit off. Regardless of the positions of the bass/treble tone controls, the characteristics will remain flat.

on (█ _ ▄):
Set to this position to adjust the tone quality by using the tone controls.

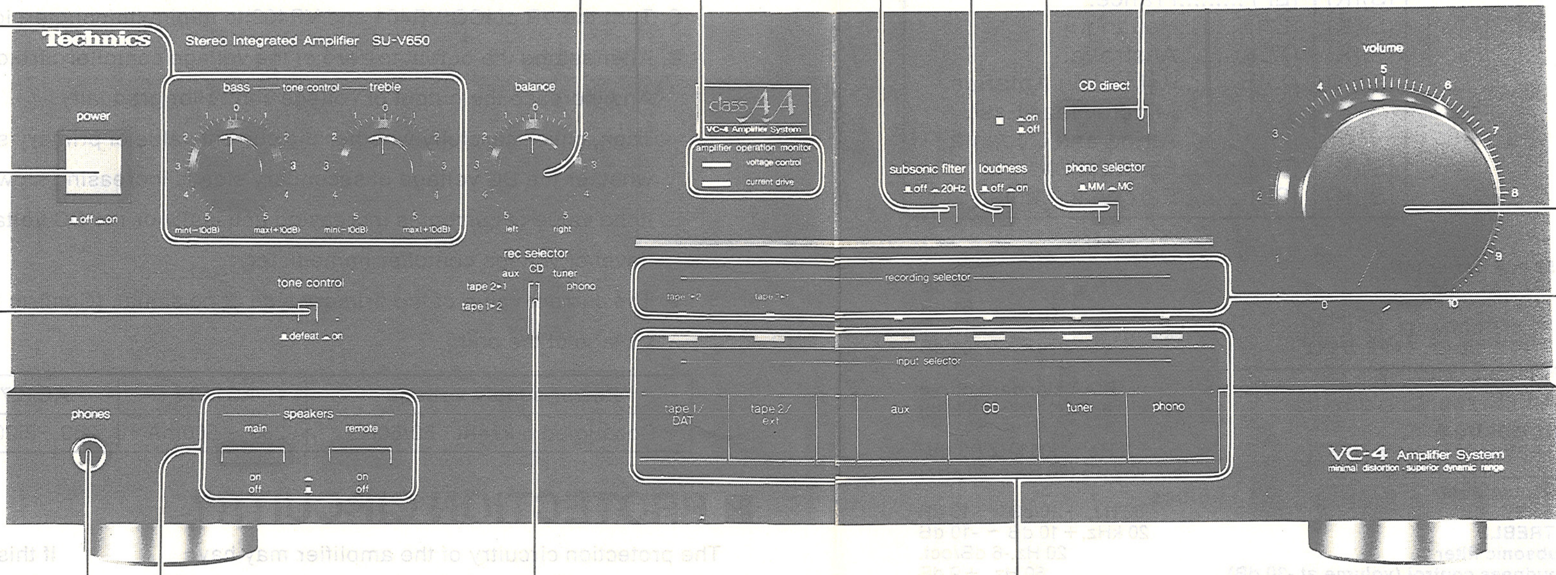
●Headphones jack (phones)

●Speaker selectors (speakers)

These selectors are used to switch the speaker systems ON and OFF.

main on (█ _ ▄):
Sound can be heard from the speakers connected to the "MAIN" terminals.

remote on (█ _ ▄):
Sound can be heard from the speakers connected to the "REMOTE" terminals.


Technics
Stereo Integrated Amplifier SU-V650
power
▄off ▁on
bass — tone control — treble
min(−10dB)
max(+10dB)
min(−10dB)
max(+10dB)
balance
left
right
tone control
▄defeat ▁on
rec selector
aux CD tuner
tape 2▸1
tape 1▸2
phono
class AA
VC-4 Amplifier System
amplifier operation monitor
voltage control
current drive
subsonic filter
▄off ▁20Hz
loudness
▄off ▁on
▁on
▄off
CD direct
phono selector
▄MM ▁MC
volume
0 1 2 3 4 5 6 7 8 9 10
recording selector
tape 1▸2
tape 2▸1
input selector
tape 1/DAT
tape 2/ext
aux
CD
tuner
phono
phones
speakers
main
remote
on
off
VC-4 Amplifier System
minimal distortion · superior dynamic range

●Recording output selector (rec selector)

This selector is used to select the signal to be recorded by the connected tape deck.

tape 1▶2:
Set to this position to record from tape deck 1 to tape deck 2.

tape 2▶1:
Set to this position to record from tape deck 2 to tape deck 1.

aux:
Set to this position to record the signals from equipment connected to the "AUX" terminals.

CD:
Set to this position to record from a compact disc.

tuner:
Set to this position to record from radio broadcasts.

phono:
Set to this position to record from phono discs.

●Loudness switch (loudness)

Set to the "on" position when listening to music at a low volume. Auditory perception of sound in the low frequency range falls off at low volume, but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

●Phono cartridge selector (phono selector)

This selector should be set to the position which corresponds to the type of cartridge used on the turntable.

MM (▄ _ █):
Set to this position when using a moving-magnet type cartridge or high-output moving-coil cartridge (1 mV or more).

MC (█ _ ▄):
Set to this position when using a moving-coil type cartridge (less than 1 mV).

●Compact disc direct-through switch (CD direct)

Even better tone quality of the very high quality signals from a compact disc can be obtained by routing these signals directly to the volume level adjustment, without passing them through an input selector.
When this switch is set to the "on" position, the sound source selected by the input selectors cannot be heard.

●Volume control (volume)

This control is used to adjust the volume level. Be absolutely sure to set this control to a low position before switching the power ON. After the power is switched ON, please wait several seconds before increasing the volume level.

●Input selectors/indicators (input selector)

Press to select the sound source to be listened.
The corresponding indicator illuminates during operation to indicate the selected sound source.

tape 1/DAT:
Press this button to playback or monitor the sound of a tape deck or other equipment connected to the "TAPE 1/DAT" terminals on the rear panel.

tape 2/ext:
Press this button to play back or monitor the sound from a tape deck connected to the "TAPE 2/EXT" terminals on the rear panel.

aux:
Press this button to listen to sound from a video disc player or other equipment connected to the "AUX" terminals on the rear panel.

CD:
Press this button to listen to a compact disc.

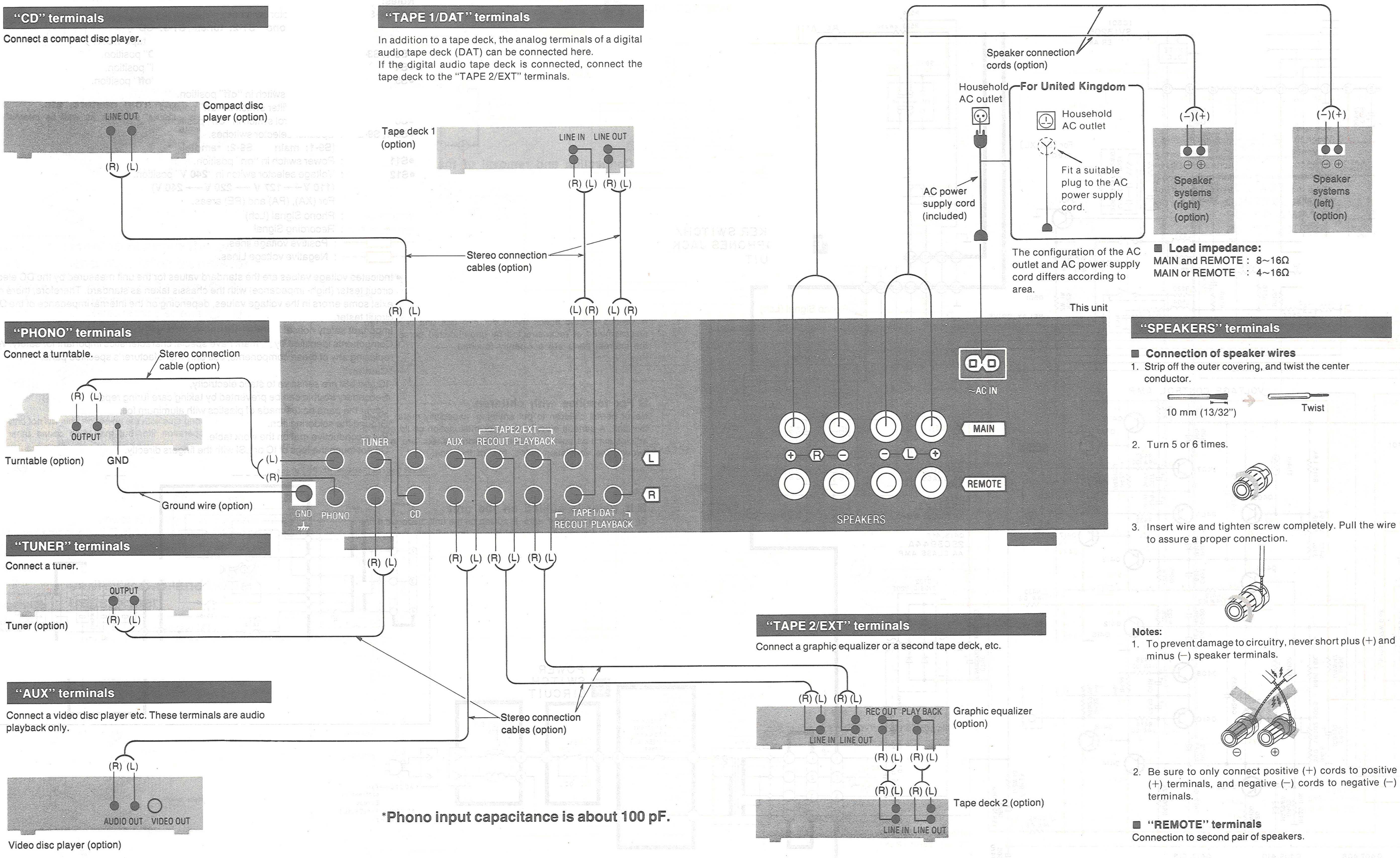
tuner:
Press this button to listen to radio broadcasts.

phono:
Press this button to listen to phono discs.

●Recording output indicators (recording selector)

These indicators indicate the program source which can be recorded.
Each indicator lights up corresponding with the selected position of the recording output selector.

■ CONNECTIONS


LINE OUT
Compact disc player (option)
(R) (L)
Tape deck 1 (option)
LINE IN
LINE OUT
(R) (L) (R) (L)
Stereo connection cables (option)
(R) (L)
(L) (R) (L) (R)
Stereo connection cable (option)
(R) (L)
OUTPUT
Turntable (option)
GND
(L)
(R)
Ground wire (option)
TUNER
AUX
TAPE2/EXT
RECOUT PLAYBACK
L
R
GND
PHONO
CD
TAPE1/DAT
RECOUT PLAYBACK
OUTPUT
Tuner (option)
(R) (L)
(R) (L)
(R) (L) (R) (L) (R) (L)
Stereo connection cables (option)
(R) (L)
AUDIO OUT
VIDEO OUT
Video disc player (option)
Speaker connection cords (option)
Household AC outlet
For United Kingdom
Household AC outlet
Fit a suitable plug to the AC power supply cord.
AC power supply cord (included)
This unit
~AC IN
MAIN
REMOTE
+ R − − L +
SPEAKERS
(−)(+)
⊖ ⊕
Speaker systems (right) (option)
(−)(+)
⊖ ⊕
Speaker systems (left) (option)
(R) (L) (R) (L)
REC OUT
PLAY BACK
LINE IN
LINE OUT
Graphic equalizer (option)
(R) (L) (R) (L)
(R) (L) (R) (L)
LINE IN
LINE OUT
Tape deck 2 (option)
10 mm (13/32")
Twist
⊖ ⊕

"CD" terminals

Connect a compact disc player.

"TAPE 1/DAT" terminals

In addition to a tape deck, the analog terminals of a digital audio tape deck (DAT) can be connected here.
If the digital audio tape deck is connected, connect the tape deck to the "TAPE 2/EXT" terminals.

"PHONO" terminals

Connect a turntable.

"TUNER" terminals

Connect a tuner.

"AUX" terminals

Connect a video disc player etc. These terminals are audio playback only.

***Phono input capacitance is about 100 pF.**

"TAPE 2/EXT" terminals

Connect a graphic equalizer or a second tape deck, etc.

The configuration of the AC outlet and AC power supply cord differs according to area.

■ Load impedance:

MAIN and REMOTE :	8~16Ω
MAIN or REMOTE :	4~16Ω

"SPEAKERS" terminals

■ Connection of speaker wires

1. Strip off the outer covering, and twist the center conductor.
2. Turn 5 or 6 times.
3. Insert wire and tighten screw completely. Pull the wire to assure a proper connection.

Notes:

1. To prevent damage to circuitry, never short plus (+) and minus (−) speaker terminals.
2. Be sure to only connect positive (+) cords to positive (+) terminals, and negative (−) cords to negative (−) terminals.

■ "REMOTE" terminals

Connection to second pair of speakers.

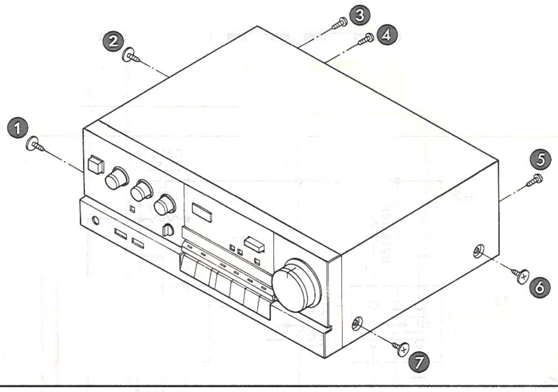
■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1

How to remove the cabinet

Procedure 1

- Remove the 7 screws (❶~❼).

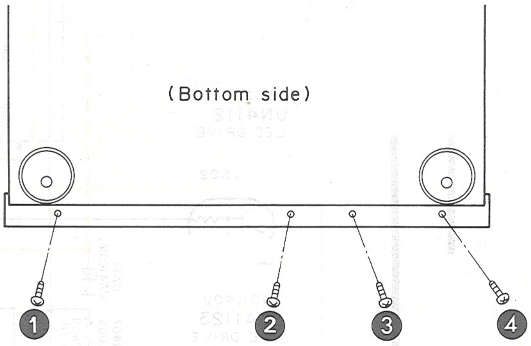


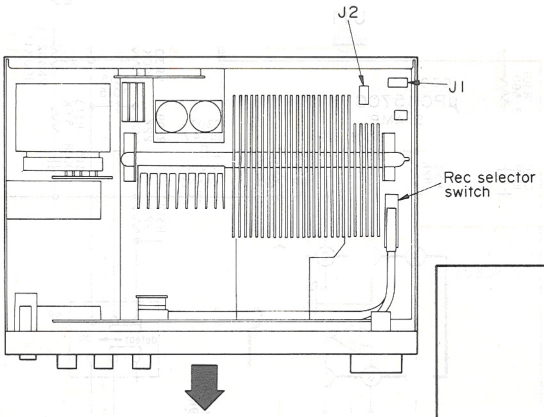
Ref. No. 2

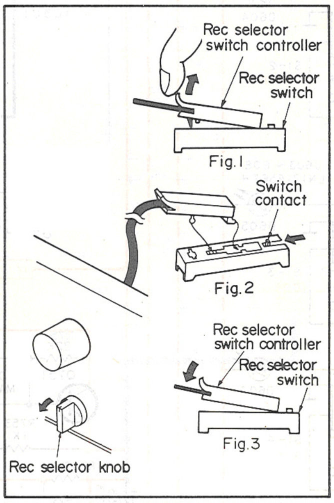
How to remove the front panel

Procedure 1→2

1. Remove the 2 connectors (J1, J2).
2. Remove the rec selector switch controller.
3. Remove the 4 screws (❶~❹).


(Bottom side)
❶
❷
❸
❹


J2
J1
Rec selector switch


Rec selector switch controller
Rec selector switch
Fig. I
Switch contact
Fig. 2
Rec selector switch controller
Rec selector switch
Fig. 3
Rec selector knob

How to remove the rec selector switch controller

- Pull up the rec selector switch controller in the direction of the arrow as shown in figure 1 and then remove it. (See Fig. 1)

How to replace the rec selector switch controller

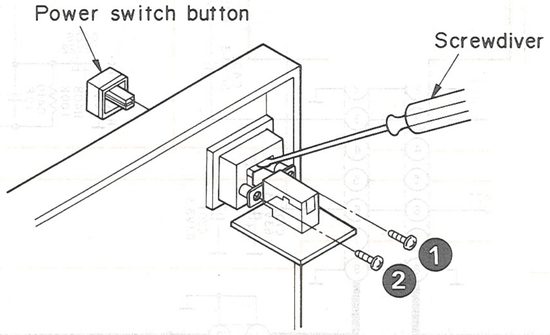
1. Push the switch contact in the direction of the arrow. (See Fig. 2)
2. Rotate the rec selector knob counterclockwise. (See Fig. 2)
3. Install the rec selector switch controller in the rec selector switch. (See Fig. 3)

Ref. No. 3

How to remove the power switch button

Procedure 1→3

1. Remove the power switch button by pushing it from behind the front panel.
2. Remove the 2 screws (❶, ❷).

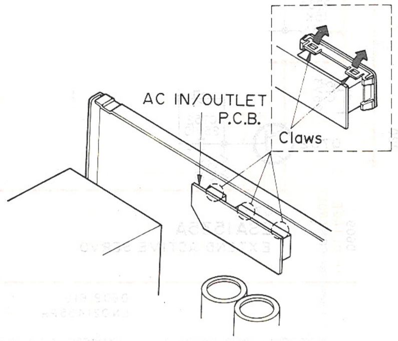

Power switch button
Screwdiver
❶
❷

Ref. No. 4

How to remove the AC IN/ OUTLET P.C.B.

Procedure 1→4

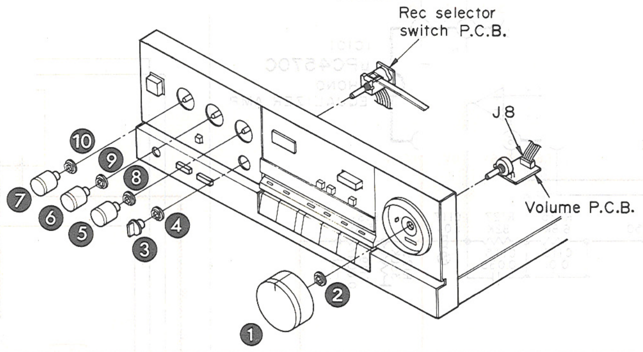
- Release the 3 claws.

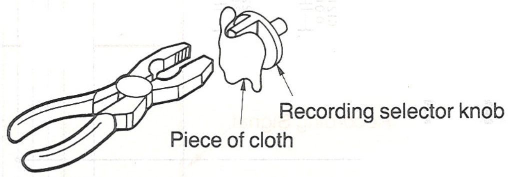

AC IN/OUTLET P.C.B.
Claws

Ref. No.
5

Procedure
1→2→5

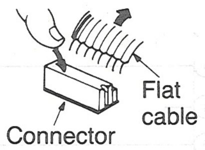
How to remove the rec selector switch P.C.B., volume P.C.B., tone P.C.B. and speaker switch P.C.B.


Rec selector switch P.C.B.
J8
Volume P.C.B.
⑩
⑨
⑧
⑦
⑥
⑤
④
③
②
①


Recording selector knob
Piece of cloth

How to remove the flat cable

Pull out the flat cable while pressing the connector.


Flat cable
Connector

How to remove the volume P.C.B.

1. Remove the 1 knob (①) and 1 nut (②).
2. Remove the flat cable (J8).

How to remove the rec selector switch P.C.B.

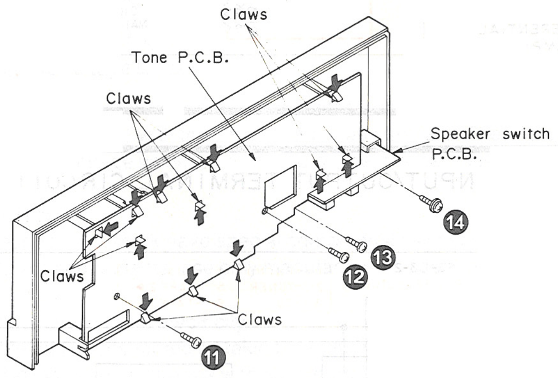
1. Remove the 1 knob (③) and 1 nut (④).
   To prevent damage to the recording selector knob when removing it with a pair of pliers, wrap it up with a piece of cloth as shown.

How to remove the tone P.C.B.

1. Remove the 3 knobs (⑤~⑦) and 3 nuts (⑧~⑩).
2. Remove the 2 screws (⑪, ⑫).
3. Release the 12 claws.

How to remove the speaker switch P.C.B.

1. Remove the 2 screws (⑬, ⑭).


Claws
Tone P.C.B.
Claws
Speaker switch P.C.B.
⑭
⑬
⑫
Claws
Claws
⑪

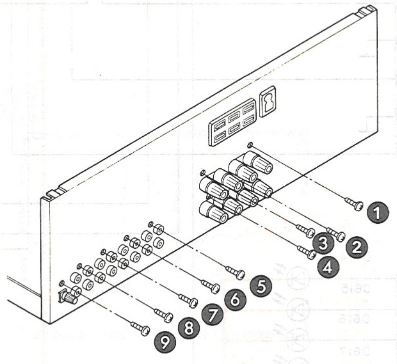
Ref. No.
6

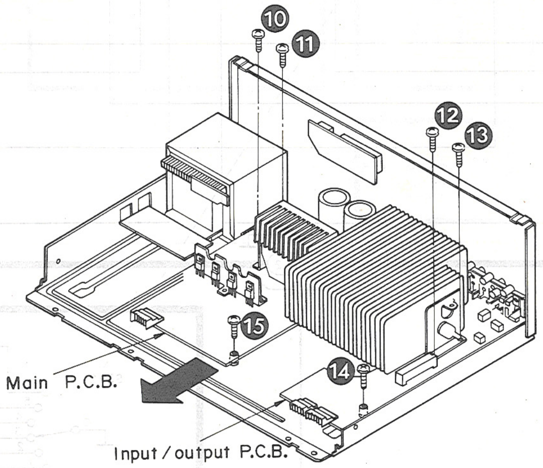
Procedure
1→2→6

How to remove the main P.C.B. and input/output P.C.B.

1. Remove the 15 screws (①~⑮).
2. Remove the main P.C.B. and input/ output P.C.B. in the direction of arrow.

Note:
To check the unit for continuity when it is turned on, place it on its right side panel where the power IC is installed. This will prevent abnormal temperature from rising inside the unit.



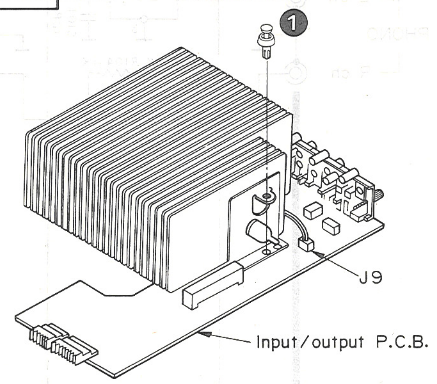

⑩
⑪
⑫
⑬
⑮
⑭
Main P.C.B.
Input/output P.C.B.

Ref. No.
7

Procedure
1→2→6→7

How to remove the input/ output P.C.B.

1. Remove the flat cable (J9).
2. Remove the latch (①).

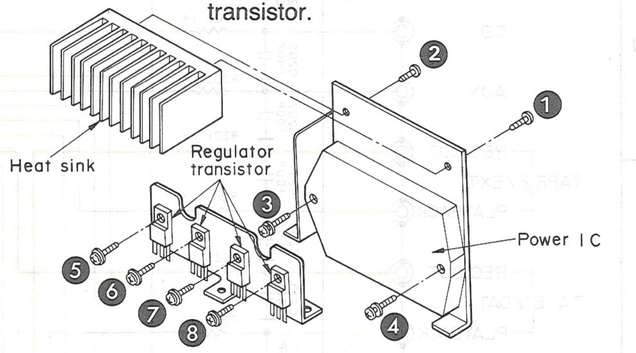

①
J9
Input/output P.C.B.

Ref. No.
8

Procedure
1→2→6→8

How to remove the power IC and regulator transistor

1. Remove the 2 screws (①, ②).
2. Remove the heat sink.
3. Remove the 6 screws (③~⑧).
4. Unsolder the power IC or regulator transistor.


②
①
Heat sink
Regulator transistor
③
Power IC
⑤
⑥
⑦
⑧
④

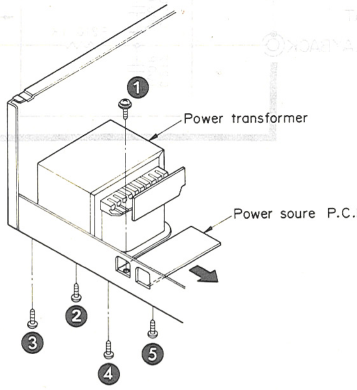
- When mounting the power IC or regulator transistor, apply silicone compound (SZZ0L15) to the rear side of powre IC or regulator transistor.

Ref. No.
9

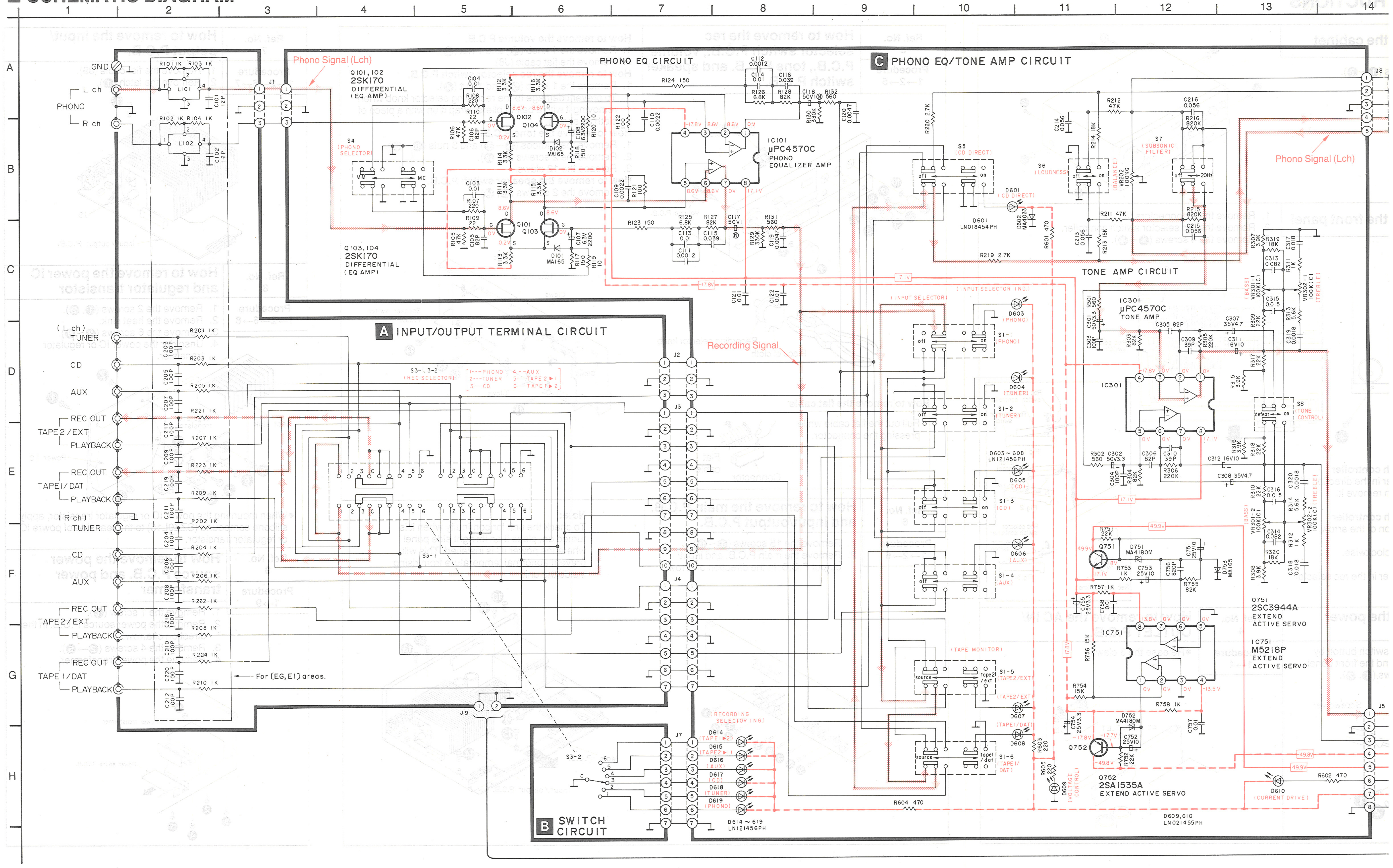
Procedure
1→9

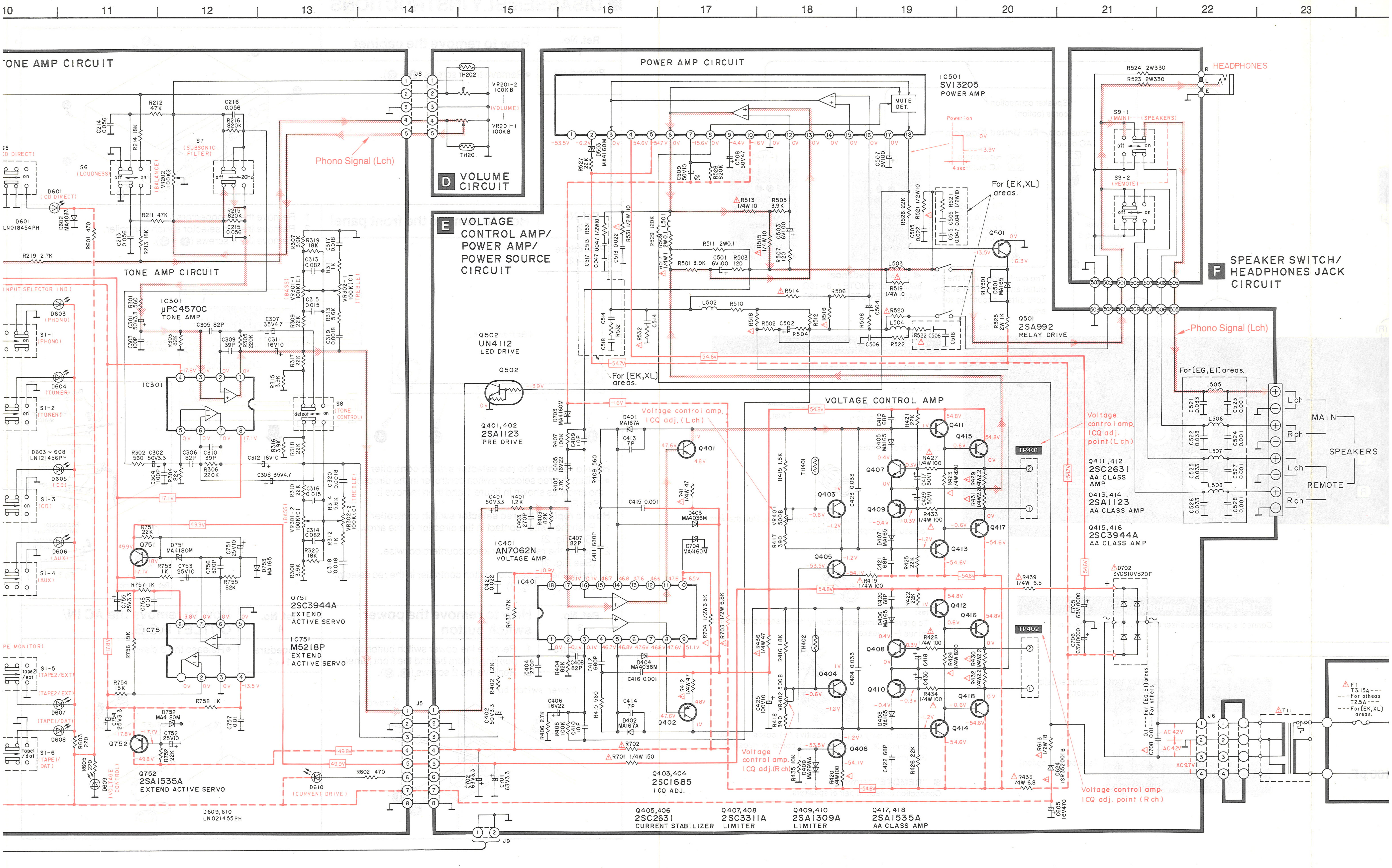
How to remove the power source P.C.B. and power transformer

1. Remove the 1 screw (①).
2. Remove the power source P.C.B. in the direction of arrow.
3. Remove the 4 screws (②→⑤).
4. Remove the power transformer.

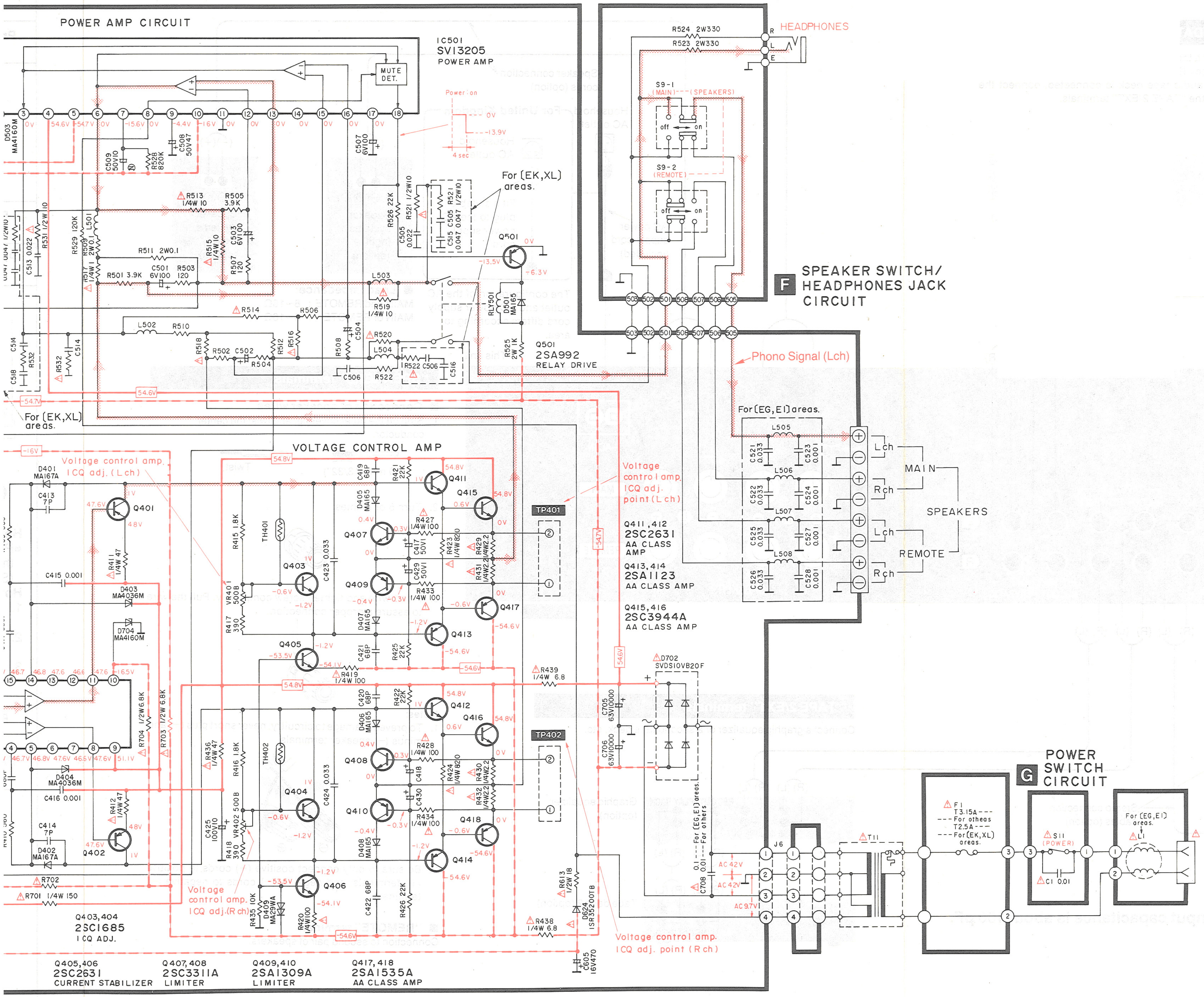

①
Power transformer
Power soure P.C.B.
③
②
④
⑤

SCHEMATIC DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
GND
L ch
PHONO
R ch
J1
R101 1K
R103 1K
L101
C101 12P
R102 1K
R104 1K
L102
C102 12P
Phono Signal (Lch)
Q101, 102
2SK170
DIFFERENTIAL
(EQ AMP)
PHONO EQ CIRCUIT
S4
(PHONO SELECTOR)
MM
MC
C104
R108 220
R110 22
R106 47K
C106 82P
R112 3.3K
R116 3.3K
Q102
Q104
D102 MA165
R114 3.3K
C108 63V2200
R118 150
R120 10
C103 0.01
R107 220
R109 22
R105 47K
C105 82P
R111 3.3K
R115 3.3K
Q101
Q103
D101 MA165
R113 3.3K
C107 63V 2200
R117 150
R119 10
Q103, 104
2SK170
DIFFERENTIAL
(EQ AMP)
R122
C110 0.0022
C109 0.0022
R121
R124 150
R123 150
C112 0.0012
C114 0.01
C116 0.039
R126 6.8K
R128 82K
C118 50V1
R132 560
R130 330K
C120 0.0047
R125 6.8K
R127 82K
C113 0.01
C115 0.039
C117 50V1
R131 560
C111 0.0012
R129 330K
C119 0.0047
C121 0.01
C122 0.01
IC101
μPC4570C
PHONO EQUALIZER AMP
C
PHONO EQ/TONE AMP CIRCUIT
R220 2.7K
S5
(CD DIRECT)
off
on
D601
(CD DIRECT)
D601 LN01845 4PH
D602 MA4033
R601 470
R219 2.7K
S6
(LOUDNESS)
C214 0.056
R214 18K
R212 47K
VR202 100KG (BALANCE)
R211 47K
C213 0.056
R213 18K
S7
(SUBSONIC FILTER)
20Hz
C216 0.056
R216 820K
R215 820K
C215 0.056
Phono Signal (Lch)
J8
TONE AMP CIRCUIT
IC301
μPC4570C
TONE AMP
R301 560
C301 50V3.3
C303 100P
R303 82K
C305 82P
C309 39P
R305 220K
C307 35V4.7
C311 16V10
R309 22K
VR301-1 100K(C) (BASS)
R307 3.9K
R319 18K
C317 0.018
C313 0.082
R311 1K
C315 0.015
R313 5.6K
VR302-1 100K(C) (TREBLE)
C319 0.0018
R317 22K
R315 3.9K
S8
(TONE CONTROL)
defeat
R302 560
C302 50V3.3
C304 100P
R304 82K
C306 82P
C310 39P
R306 220K
C312 16V10
C308 35V4.7
R316 3.9K
R318 22K
R310 22K
C316 0.015
C314 0.082
R314 5.6K
C320 0.0018
VR301-2 100K(C) (BASS)
VR302-2 100K(C) (TREBLE)
R308 3.9K
R320 18K
R312 1K
C318 0.018
(INPUT SELECTOR IND.)
(INPUT SELECTOR)
D603 (PHONO)
S1-1 (PHONO)
D604 (TUNER)
S1-2 (TUNER)
D603 ~ 608 LN121456PH
D605 (CD)
S1-3 (CD)
D606 (AUX)
S1-4 (AUX)
(TAPE MONITOR)
source
tape2/ext
S1-5 (TAPE2/EXT)
(TAPE2/EXT)
D607 (TAPE1/DAT)
D608
tape1/dat
S1-6 (TAPE1/DAT)
R603 220
R605 220
D609 (VOLTAGE CONTROL)
R604 470
Recording Signal
R751 22K
Q751
D751 MA4180M
C751 25V10
R753 1K
C753 25V10
C756 820P
R755 82K
D753 MA165
R757 1K
C755 25V3.3
C758 0.01
IC751
R756 15K
R754 15K
R758 1K
C757 0.01
C754 25V3.3
D752 MA4180M
C752 25V10
Q752
R752 22K
Q751
2SC3944A
EXTEND ACTIVE SERVO
IC751
M5218P
EXTEND ACTIVE SERVO
Q752
2SA1535A
EXTEND ACTIVE SERVO
D610 (CURRENT DRIVE)
R602 470
D609, 610 LN021455PH
J5
A
INPUT/OUTPUT TERMINAL CIRCUIT
(L ch) TUNER
CD
AUX
REC OUT
TAPE2/EXT
PLAYBACK
REC OUT
TAPE1/DAT
PLAYBACK
(R ch) TUNER
CD
AUX
REC OUT
TAPE2/EXT
PLAYBACK
REC OUT
TAPE1/DAT
PLAYBACK
R201 1K
C203 100P
R203 1K
C205 100P
R205 1K
C207 100P
R221 1K
C217 100P
R207 1K
C209 100P
R223 1K
C219 100P
R209 1K
C211 100P
R202 1K
C204 100P
R204 1K
C206 100P
R206 1K
C208 100P
R222 1K
C218 100P
R208 1K
C210 100P
R224 1K
C220 100P
R210 1K
C212 100P
For [EG, EI] areas.
S3-1, 3-2
(REC SELECTOR)
1---PHONO
2---TUNER
3---CD
4---AUX
5---TAPE2▶1
6---TAPE1▶2
S3-1
J2
J3
J4
J9
B
SWITCH CIRCUIT
S3-2
J7
(RECORDING SELECTOR IND.)
D614 (TAPE1▶2)
D615 (TAPE2▶1)
D616 (AUX)
D617 (CD)
D618 (TUNER)
D619 (PHONO)
D614 ~ 619 LN121456PH
8.6V
0.2V
-17.8V
17.1V
0V
-13.5V
49.9V
-49.8V
13.8V
-17.7V


10
11
12
13
14
15
16
17
18
19
20
21
22
23
TONE AMP CIRCUIT
Phono Signal (Lch)
S7 (SUBSONIC FILTER)
S6 (LOUDNESS)
VR202 100KG (BALANCE)
D601 (CD DIRECT)
D601 LN018454PH
D602 MA4033
R601 470
R219 2.7K
INPUT SELECTOR IND.
IC301 μPC4570C TONE AMP
IC301
S8 (TONE CONTROL)
VR301-1 100K(C) (BASS)
VR302-1 100K(C) (TREBLE)
VR301-2 100K(C) (BASS)
VR302-2 100K(C) (TREBLE)
D603 (PHONO)
S1-1 (PHONO)
D604 (TUNER)
S1-2 (TUNER)
D603~608 LN121456PH
D605 (CD)
S1-3 (CD)
D606 (AUX)
S1-4 (AUX)
TAPE MONITOR
S1-5 (TAPE2/EXT)
D607 (TAPE1/DAT)
D608
S1-6 (TAPE1/DAT)
D609 (VOLTAGE CONTROL)
D610 (CURRENT DRIVE)
D609,610 LN021455PH
IC751
Q751
Q752
Q751 2SC3944A EXTEND ACTIVE SERVO
IC751 M5218P EXTEND ACTIVE SERVO
Q752 2SA1535A EXTEND ACTIVE SERVO
J8
J5
J9
D VOLUME CIRCUIT
TH202
TH201
VR201-2 100KB
VR201-1 100KB
(VOLUME)
E VOLTAGE CONTROL AMP/ POWER AMP/ POWER SOURCE CIRCUIT
POWER AMP CIRCUIT
IC501 SV13205 POWER AMP
MUTE DET.
Power on
4 sec
For (EK,XL) areas.
Q501
Q501 2SA992 RELAY DRIVE
RLY501
Q502
Q502 UN4112 LED DRIVE
Q401,402 2SA1123 PRE DRIVE
IC401
IC401 AN7062N VOLTAGE AMP
Q401
Q402
Voltage control amp. ICQ adj. (Lch)
Voltage control amp. ICQ adj. (Rch)
VOLTAGE CONTROL AMP
Voltage control amp. ICQ adj. point (Lch)
Voltage control amp. ICQ adj. point (Rch)
TP401
TP402
Q411,412 2SC2631 AA CLASS AMP
Q413,414 2SA1123 AA CLASS AMP
Q415,416 2SC3944A AA CLASS AMP
Q403,404 2SC1685 ICQ ADJ.
Q405,406 2SC2631 CURRENT STABILIZER
Q407,408 2SC3311A LIMITER
Q409,410 2SA1309A LIMITER
Q417,418 2SA1535A AA CLASS AMP
D702 SVDS1OVB20F
For (EG,EI) areas.
J6
F1 T3.15A --- For others T2.5A --- For (EK,XL) areas.
T1
HEADPHONES
S9-1 (MAIN) (SPEAKERS)
S9-2 (REMOTE)
F SPEAKER SWITCH/ HEADPHONES JACK CIRCUIT
Phono Signal (Lch)
MAIN
REMOTE
SPEAKERS
Lch
Rch

16 17 18 19 20 21 22 23 24 25 26 27 28 29


POWER AMP CIRCUIT
IC501
SVI3205
POWER AMP
MUTE DET.
Power-on
4 sec
For (EK,XL) areas.
Q501
2SA992
RELAY DRIVE
RLY501
D501 MA165
HEADPHONES
R524 2W330
R523 2W330
S9-1 (MAIN)---(SPEAKERS)
S9-2 (REMOTE)
off on
F
SPEAKER SWITCH/
HEADPHONES JACK
CIRCUIT
Phono Signal (Lch)
For (EG,EI) areas.
L505
L506
L507
L508
Lch
Rch
MAIN
SPEAKERS
REMOTE
VOLTAGE CONTROL AMP
Voltage control amp. ICQ adj. (Lch)
Voltage control amp. ICQ adj. point (Lch)
Voltage control amp. ICQ adj. (Rch)
Voltage control amp. ICQ adj. point (Rch)
TP401
TP402
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
Q413
Q414
Q415
Q416
Q417
Q418
Q411, 412
2SC2631
AA CLASS AMP
Q413, 414
2SA1123
AA CLASS AMP
Q415, 416
2SC3944A
AA CLASS AMP
Q403, 404
2SC1685
ICQ ADJ.
Q405, 406
2SC2631
CURRENT STABILIZER
Q407, 408
2SC3311A
LIMITER
Q409, 410
2SA1309A
LIMITER
Q417, 418
2SA1535A
AA CLASS AMP
D702
SVDS10VB20F
C705 63V10000
C706 63V10000
C605 16V470
D624 ISR35200TB
R613 1/2W 18
R439 1/4W 6.8
R438 1/4W 6.8
VR401 500B
VR402 500B
TH401
TH402
D401 MA167A
D402 MA167A
D403 MA4036M
D404 MA4036M
D704 MA4160M
R701 1/4W 150
R702
G
POWER
SWITCH
CIRCUIT
F1
T3.15A --- For others
T2.5A --- For (EK,XL) areas.
S11 (POWER)
C1 0.01
T11
J6
L1
For (EG,EI) areas.
AC 42V
AC 9.7V
C708 0.01 --- For (EG,EI) areas. 0.01 --- For others
AC 220V--For continental Europe
AC 240V--For (EK,XL)
(50/60Hz)

(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

- **S1-1～S1-6** : Input selector switches.
  (**S1-1: phono S1-2: tuner S1-3: CD**
  S1-4: aux S1-5: tape 2/ext S1-6: tape 1/DAT)
- **S3-1, S3-2** : Recording output selector switch in "**CD**" position.
- **S4** : Phono cartridge selector switch in "**MM**" position.
- **S5** : Compact disc direct-through switch in "**off**" position.
- **S6** : Loudness switch in "**off**" position.
- **S7** : Subsonic filter switch in "**off**" position.
- **S8** : Tone control switch in "**off**" position.
- **S9-1, S9-2** : Speaker selector switches.
  [**S9-1: main S9-2: remote**]
- **S11** : Power switch in "**on**" position.
- **S12** : Voltage selector switch in "**240 V**" position.
  (**110 V ↔ 127 V ↔ 220 V ↔ 240 V**)
  For (XA), (PA) and (PE) areas.

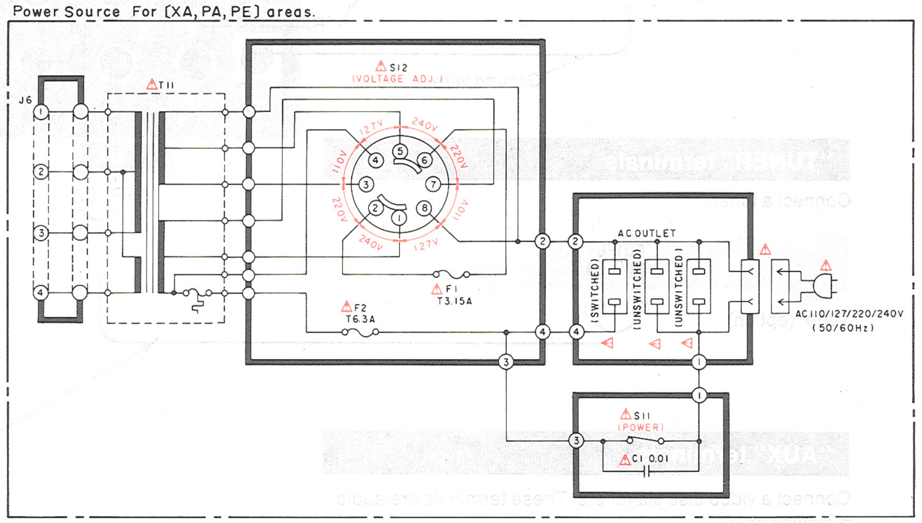
▨▨▨▨▨▨➤	: Phono Signal (Lch)
▨ ▨ ▨ ▨➤	: Recording Signal
—□—	: Positive voltage lines.
- -□- -	: Negative voltage Lines.

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high- impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

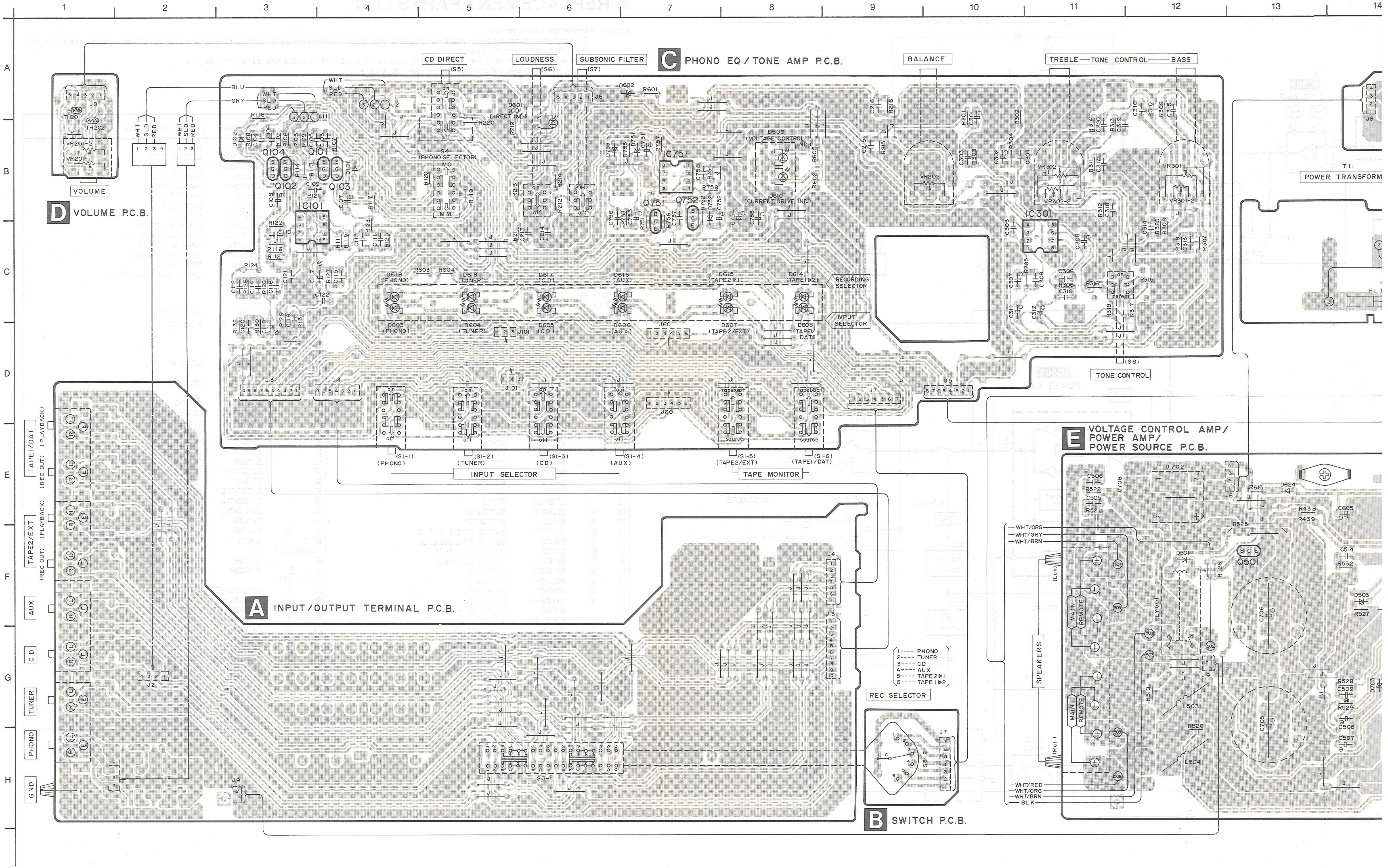
  Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

  ***Caution!**
  IC and LSI are sensitive to static electricity.
  Secondary trouble can be prevented by taking care furing repair.
  *Cover the parts boxes made of plastics with aluminum foil.
  *Ground the soldering iron.
  *Put a conductive mat on the work table.
  *Do not touch the legs of IC or LSI with the fingers directly.

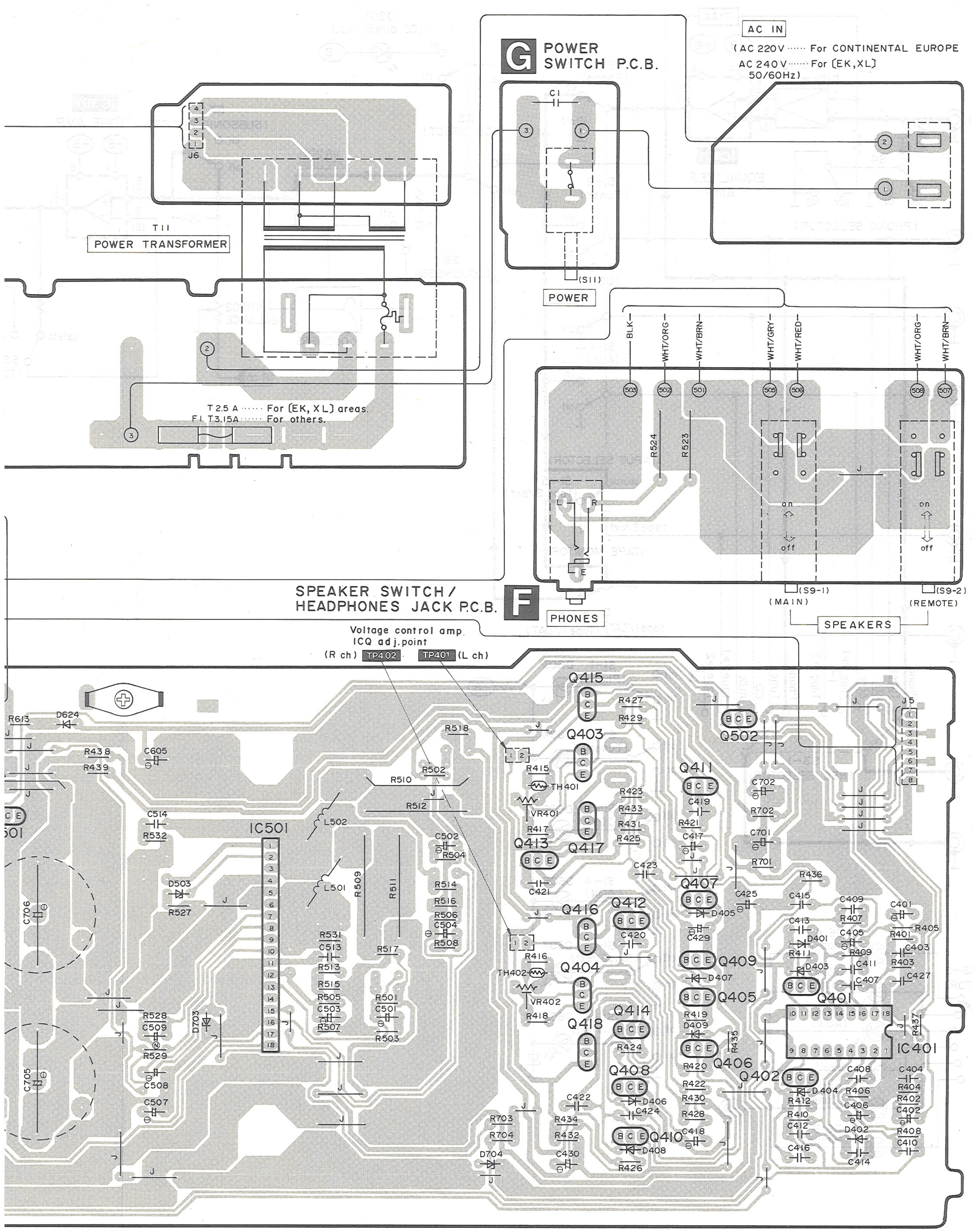
Power Source For (XA, PA, PE) areas.


S12
(VOLTAGE ADJ.)
J6
T11
110V
127V
240V
220V
F1 T3.15A
F2 T6.3A
AC OUTLET
(SWITCHED)
(UNSWITCHED)
(UNSWITCHED)
AC110/127/220/240V
(50/60Hz)
S11
(POWER)
C1 0.01

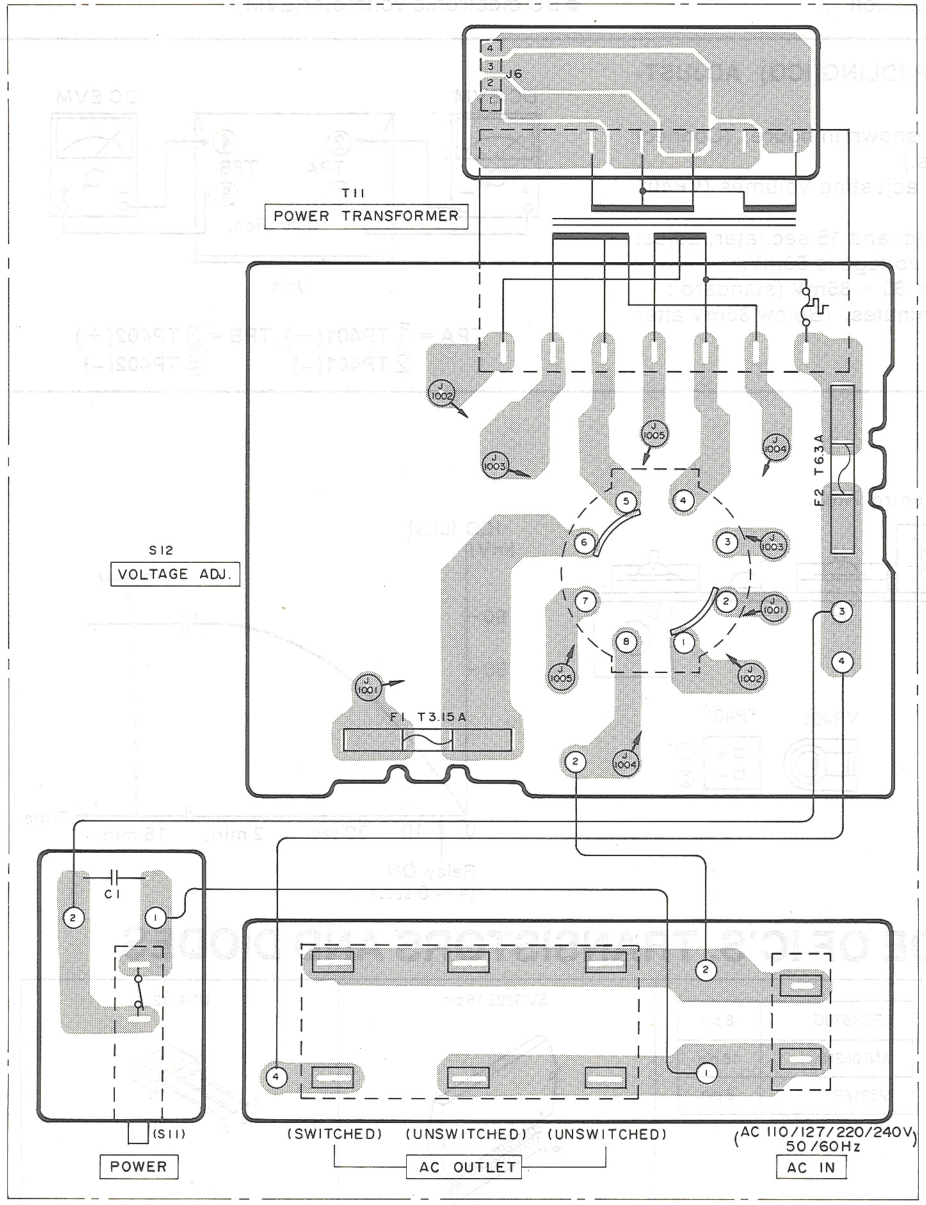
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
C PHONO EQ / TONE AMP P.C.B.
CD DIRECT
(S5)
LOUDNESS
(S6)
SUBSONIC FILTER
(S7)
BALANCE
TREBLE — TONE CONTROL — BASS
D VOLUME P.C.B.
VOLUME
VR201-2
VR201-1
TH201
TH202
J8
J1
J2
WHT
SLD
RED
BLU
GRY
Q104
Q102
Q101
Q103
IC101
S4
(PHONO SELECTOR)
MC
MM
D601
(CD DIRECT IND.)
20Hz
D609
(VOLTAGE CONTROL IND.)
D610
(CURRENT DRIVE IND.)
IC751
Q751
Q752
VR202
VR302
VR302-2
VR301-1
VR301-2
IC301
defeat
(S8)
TONE CONTROL
D619 (PHONO)
D618 (TUNER)
D617 (CD)
D616 (AUX)
D615 (TAPE2▶1)
D614 (TAPE1▶2)
RECORDING SELECTOR
D603 (PHONO)
D604 (TUNER)
D605 (CD)
D606 (AUX)
D607 (TAPE2/EXT)
D608 (TAPE1/DAT)
INPUT SELECTOR
J101
J601
J3
J4
J5
J7
(S1-1) (PHONO)
(S1-2) (TUNER)
(S1-3) (CD)
(S1-4) (AUX)
(S1-5) (TAPE2/EXT)
(S1-6) (TAPE1/DAT)
INPUT SELECTOR
TAPE MONITOR
tape2ext
tape1dat
source
on
off
A INPUT/OUTPUT TERMINAL P.C.B.
TAPE1/DAT (REC OUT) (PLAYBACK)
TAPE2/EXT (REC OUT) (PLAYBACK)
AUX
CD
TUNER
PHONO
GND
L
R
E
J2
J9
S3-1
1---- PHONO
2---- TUNER
3---- CD
4---- AUX
5---- TAPE2▶1
6---- TAPE1▶2
REC SELECTOR
B SWITCH P.C.B.
S3-2
J7
E VOLTAGE CONTROL AMP/ POWER AMP/ POWER SOURCE P.C.B.
D702
C708
C506
R522
C505
R521
J6
R613
D624
R438
R439
C605
R525
Q501
D501
R526
C514
R532
D503
R527
C706
RLY501
MAIN
REMOTE
(Lch)
(Rch)
SPEAKERS
L503
L504
R519
R520
C705
R528
C509
R529
C508
C507
D703
WHT/ORG
WHT/GRY
WHT/BRN
WHT/RED
BLK
T11
POWER TRANSFORM
J6

13 14 15 16 17 18 19 20 21 22 23 24 25


G POWER SWITCH P.C.B.
AC IN
(AC 220V …… For CONTINENTAL EUROPE
AC 240V …… For (EK, XL)
50/60Hz)
C1
POWER
(S11)
J6
T11
POWER TRANSFORMER
T2.5 A …… For (EK, XL) areas.
F1 T3.15A …… For others.
BLK
WHT/ORG
WHT/BRN
WHT/GRY
WHT/RED
R524
R523
on
off
(S9-1)
(MAIN)
(S9-2)
(REMOTE)
SPEAKERS
PHONES
SPEAKER SWITCH/
HEADPHONES JACK P.C.B. F
Voltage control amp
ICQ adj. point
(R ch) TP402 TP401 (L ch)
IC501
IC401
Q401
Q402
Q403
Q404
Q405
Q406
Q407
Q408
Q409
Q410
Q411
Q412
Q413
Q414
Q415
Q416
Q417
Q418
Q502
VR401
VR402
TH401
TH402
J5

Power Source For (XA, PA, PE) areas.


J6
T11
POWER TRANSFORMER
S12
VOLTAGE ADJ.
F2 T63A
F1 T3.15A
C1
(S11)
POWER
(SWITCHED)
(UNSWITCHED)
(UNSWITCHED)
AC OUTLET
(AC 110/127/220/240V)
50/60Hz
AC IN

MEASUREMENTS AND ADJUSTMENTS

Control positions and equipment used.

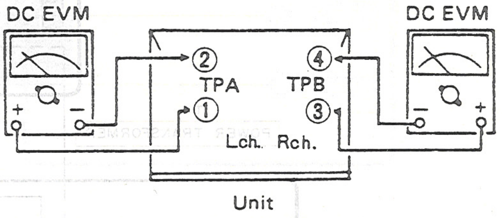
- ●Volume knob...............∞ (Minimum)
- ●Main speaker selector.................off
- ●Remote speaker selector...............off
- ●DC electronic voltmeter(EVM)

VOLTAGE CONTROL(V)AMP.IDLING(ICQ) ADJUSTMENT

1.Test equipment connection is shown in figure. (Connect the DC EVM on both channels.)

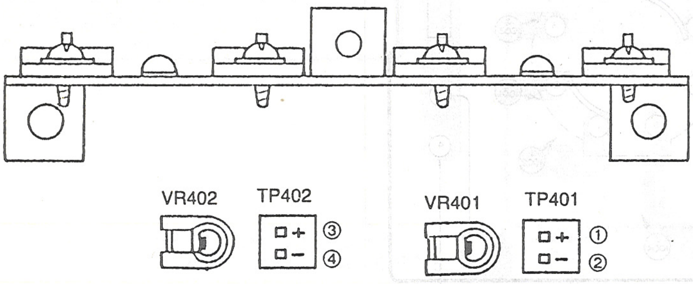
2.Completely turn the (V) amp. adjusting volumes (**VR401**, **VR402**) counter-clockwise.

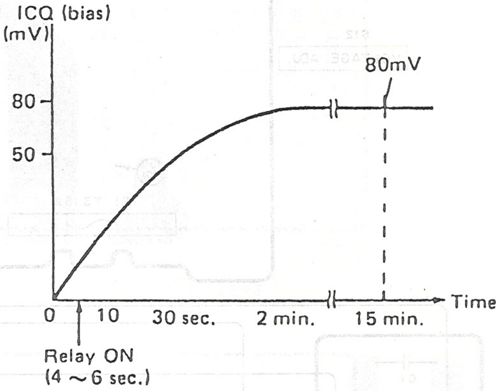
3.Turn ON the set when it is cold, and 15 sec.later, adjust **VR401** and **VR402** so that the voltage is **50mV.** Also, check that the voltage is **60 ~ 85mV** (standard : **80mV)** after lapse of **10 - 15 minutes.** (Below **85mV** after lapse of **60 min.)**


DC EVM
DC EVM
②
TPA
①
④
TPB
③
+
−
−
+
Lch.
Rch.
Unit

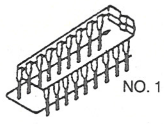
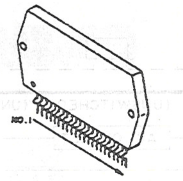
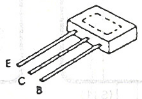
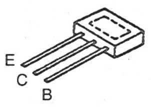
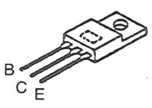
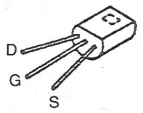
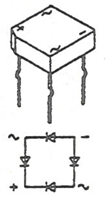
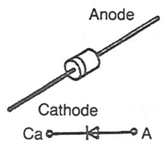
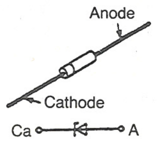
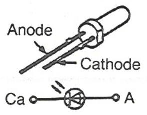
TPA = ①TP401(+) ,TPB = ③TP402(+)
②TP401(−) ④TP402(−)

● **Adjustment points**

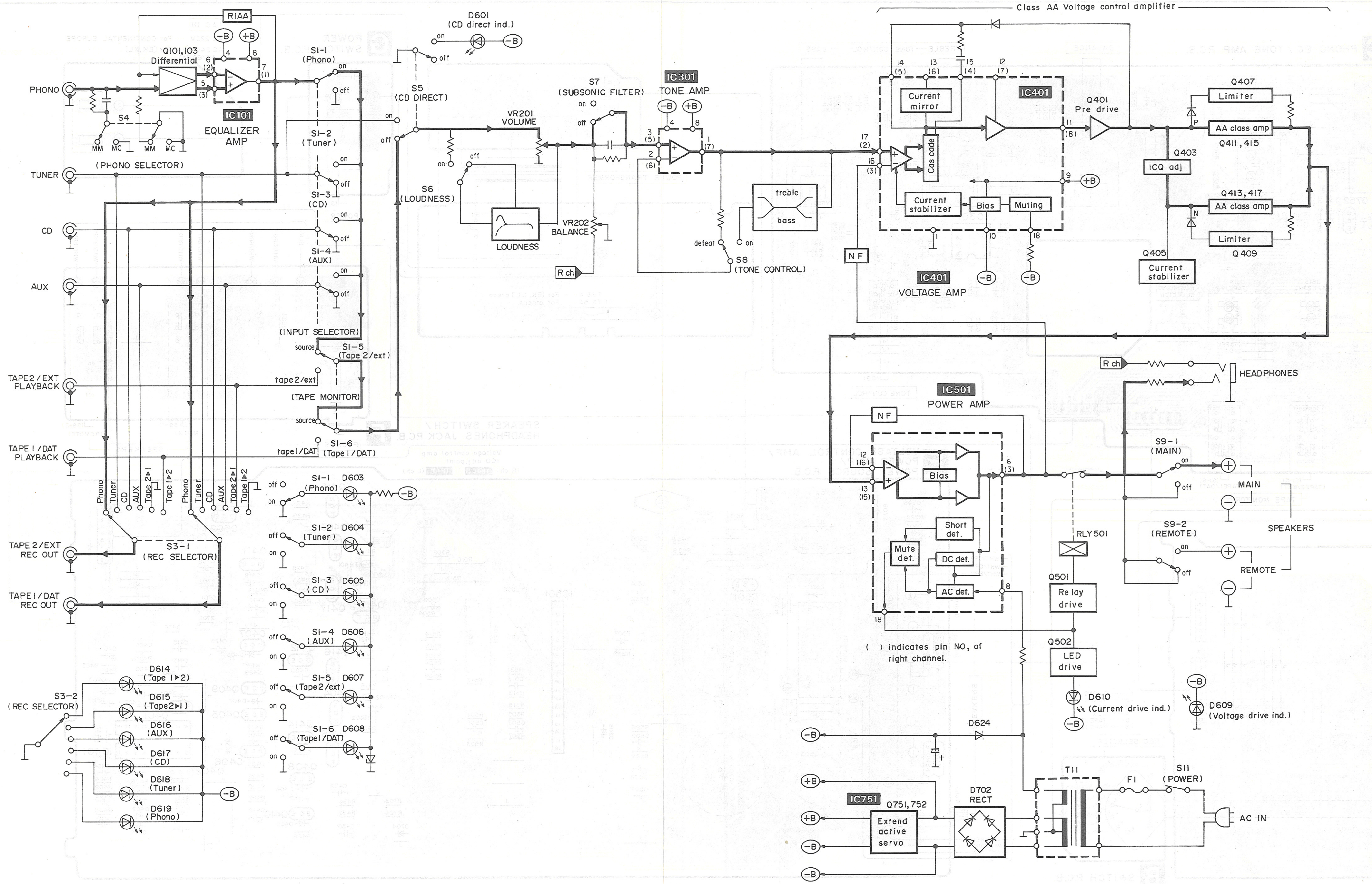

Voltage control Amp.
VR402
TP402
③
④
VR401
TP401
①
②



TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

	UPC4570C 8 pin AN7062N 18 pin M5218P 8 pin	SVI3205 18 pin 	UN4112 
2SC3311, 2SA1309 	2SC3944, 2SA1535 	2SK170 2SA1123 2SC1685, 2SC2631 2SA992 	SVDS10VB20 
MA165, MA167 MA29, SVD15R35200  Anode Cathode Ca A	MA4036, MA4160 MA4033. MA4180  Anode Cathode Ca A	LN018454 LN121456 LN121455  Anode Cathode Ca A	

■ BLOCK DIAGRAM


RIAA
Q101,103
Differential
IC101
EQUALIZER
AMP
PHONO
S4
MM
MC
(PHONO SELECTOR)
TUNER
CD
AUX
TAPE2/EXT
PLAYBACK
TAPE 1/DAT
PLAYBACK
TAPE 2/EXT
REC OUT
TAPE1/DAT
REC OUT
S1-1
(Phono)
S1-2
(Tuner)
S1-3
(CD)
S1-4
(AUX)
on
off
(INPUT SELECTOR)
source
S1-5
(Tape 2/ext)
tape2/ext
(TAPE MONITOR)
S1-6
(Tape 1/DAT)
tape1/DAT
Phono
Tuner
CD
AUX
Tape2▶1
Tape1▶2
S3-1
(REC SELECTOR)
S3-2
(REC SELECTOR)
D614
(Tape 1▶2)
D615
(Tape2▶1)
D616
(AUX)
D617
(CD)
D618
(Tuner)
D619
(Phono)
D603
D604
D605
D606
D607
D608
S1-1 (Phono)
S1-2 (Tuner)
S1-3 (CD)
S1-4 (AUX)
S1-5 (Tape2/ext)
S1-6 (Tape1/DAT)
D601
(CD direct ind.)
S5
(CD DIRECT)
S6
(LOUDNESS)
LOUDNESS
VR201
VOLUME
VR202
BALANCE
R ch
S7
(SUBSONIC FILTER)
IC301
TONE AMP
treble
bass
defeat
S8
(TONE CONTROL)
Class AA Voltage control amplifier
Current
mirror
Cas cade
Current
stabilizer
Bias
Muting
IC401
VOLTAGE AMP
Q401
Pre drive
Q407
Limiter
AA class amp
Q411,415
Q403
ICQ adj
Q413,417
AA class amp
Limiter
Q409
Q405
Current
stabilizer
N F
IC501
POWER AMP
NF
Bias
Short
det.
Mute
det.
DC det.
AC det.
RLY501
Q501
Relay
drive
Q502
LED
drive
D610
(Current drive ind.)
D609
(Voltage drive ind.)
R ch
HEADPHONES
S9-1
(MAIN)
MAIN
S9-2
(REMOTE)
REMOTE
SPEAKERS
D624
IC751
Q751,752
Extend
active
servo
D702
RECT
T11
F1
S11
(POWER)
AC IN
+B
-B

( ) indicates pin NO, of right channel.

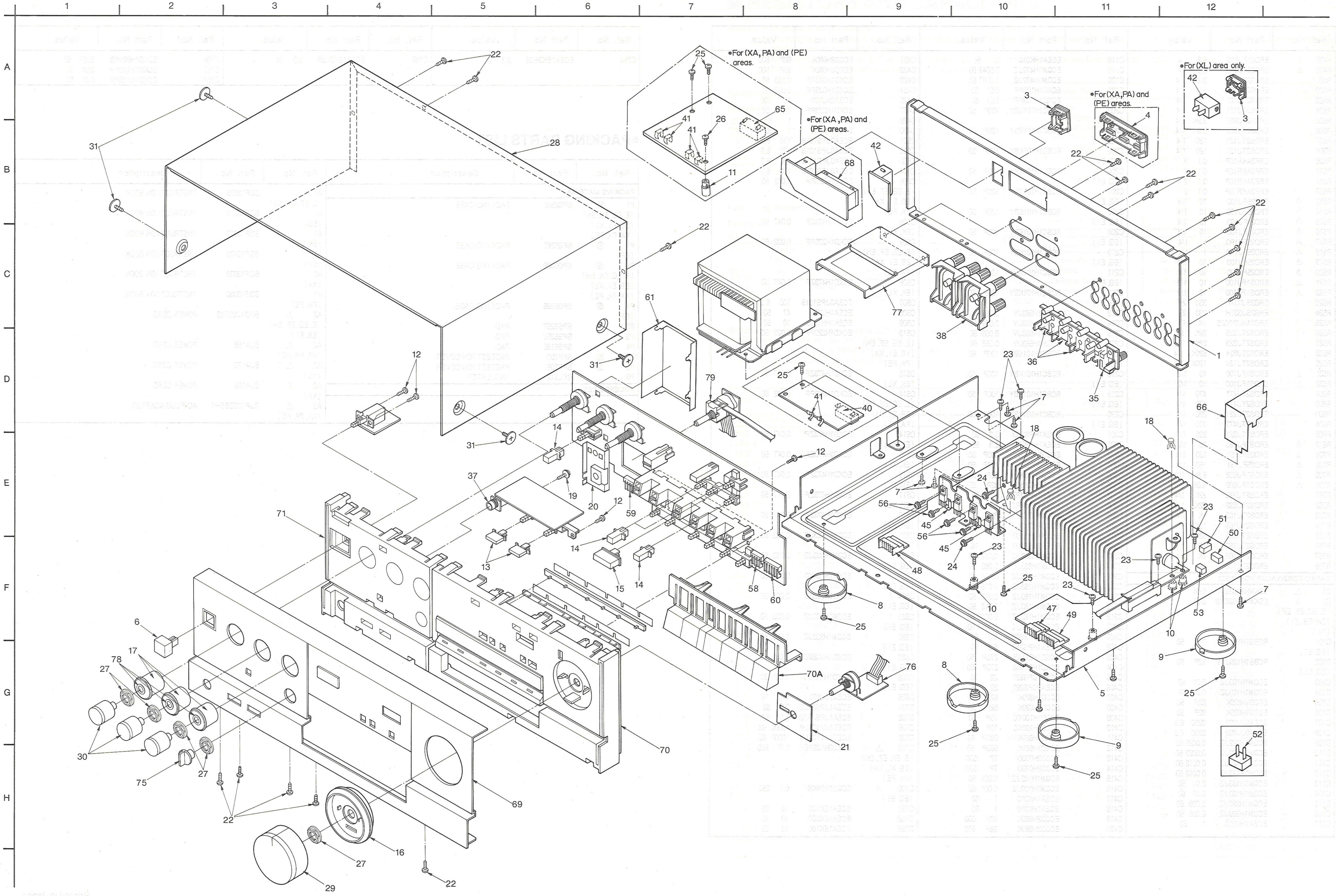
■ REPLACEMENT PARTS LIST

Notes : ∗ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
∗ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

•CABINET PARTS LIST

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1 (EF, EH, EB) (EI)	SGPUV650-KE	REAR PANEL
1 (XA, PA, PE)	SGP7440-1A	PANEL, REAR
1 (E)	SGP7440A	PANEL, REAR
1 (EG)	SGP7440B	PANEL, REAR
1 (EK)	SGP7440C	REAR PANEL
1 (XL)	SGP7440D	PANEL, REAR
3 (E, EG, EK, EF) (EH, EB, EI) (XA, PA, PE)	SJS9231A	AC INLET COVER
3 (XL)	SJS9234A	AC INLET COVER
4 (XA, PA, PE)	SJS9328A	AC OUTLET COVER
5 (E, EG, EK, EF) (EH, EB, EI) (XL)	SKU11420-5	BOTTOM BOARD
5 (XA, PA, PE)	SKU11420-6	BOTTOM BOARD
6 Ⓚ	SBC666-5	BUTTON, POWER
6 Ⓢ	SBC666	BUTTON, POWER
7	XTB3+8FFZ	SCREW
8	SKL308	SET FOOT(L)
9	SKL309	SET FOOT(R)
10	SHE187-2	HOLDER
11 (XA, PA, PE)	SHE237	HOLDER
12	XTB3+10G	SCREW
13 Ⓚ	SBC439-2	BUTTON, SP
13 Ⓢ	SBC439	BUTTON, SP
14 Ⓚ	SBC719-1	BUTTON, TONE/SUB/LOUD
14 Ⓢ	SBC719	BUTTON, TONE/SUB/LOUD
15 Ⓚ	SBC820	BUTTON, CD DIRECT
15 Ⓢ	SBC820-1	BUTTON, CD DIRECT
16 Ⓚ	SGX8006	ORNAMENT
16 Ⓢ	SGX8006-1	ORNAMENT
17 Ⓚ	SGX8007	ORNAMENT
17 Ⓢ	SGX8007-1	ORNAMENT
18	SHR415	LOCK PIN
19	XTWS3+10Q	SCREW
20 Ⓢ	SMC1296	SHIELD COVER
21 Ⓚ	SMC6407-1	SHIELD COVER
22	XTBS3+10JFZ1	TAPPING SCREW
23	XTB3+20J	SCREW
24	XYN3+F14	TAPPING SCREW
25	XTW3+10T	SCREW
26 (XA, PA, PE)	XTB3+30J	SCREW
27	SNE4021-1	NUT
28 Ⓚ	SKC2210K991	CABINET BODY
28 Ⓢ	SKC2210S981	CABINET BODY
29 Ⓚ	SBN1249	KNOB, MAIN VOL
29 Ⓢ	SBN1249-1	KNOB, MAIN VOL
30 Ⓚ	SBN1247	KNOB, TONE
30 Ⓢ	SBN1248	KNOB, TONE
31 Ⓚ	SNE2129-3	SCREW
31 Ⓢ	SNE2129-2	ORNAMENT SCREW
35	SJF3070NJ	TERMINAL, PHONO IN
36	SJF3071NJ	TERMINAL, INPUT
37	SJJD17B	JACK, HEADPHONES
38	SJF4819	TERMINAL, SP
40 (E, EG, EK, EF) (EH, EB, EI) (XL)	SJS305-1	JACK, POWER TRANSFORMER
41 ⚠	SJT388	FUSE HOLDER
42 ⚠ (E, EG, EK, EF) (EH, EB, EI) (XL)	SJS9231-1B	AC INLET
42 ⚠ (XA, PA, PE)	SJS9231-1B	AC INLET
42 ⚠ (XL)	SJS9234B	AC INLET
45	SUS227	SPRING
47	SJS50780WL	CONNECTOR(7P)
48	SJS50880WL	CONNECTOR(8P)
49	SJS51080WL	CONNECTOR(10P)
50	SJT3319	CONNECTOR(3P)
51	SJT3415	CONNECTOR(4P)
52	SJT3209	TERMINAL, TEST POINT
53	SJT30243-V	CONNECTOR(2P)
56	XTW3+8T	SCREW
58	SJT30747WL	CONNECTOR(7P)
59	SJT30847WL	CONNECTOR(8P)
60	SJT31047WL	CONNECTOR(10P)
61	SMC1300	SHIELD COVER
61 Ⓢ	SMC1295	SHIELD COVER
65 (XA, PA, PE)	SJS702-1	JACK.SOCKET, POWER TRANSFORMER
66	SMC1299	SHIELD PLATE
68 ⚠ (XA, PA, PE)	SJS9328B	SOCKET
69 Ⓚ	SGWUV650-KE	FRONT PANEL
69 Ⓢ	SGWUV650-SE	FRONT PANEL
70 Ⓚ	SGXUV650-KE1	FRONT GRILLE (R)
70 Ⓢ	SGXUV650-SE1	FRONT GRILLE (R)
70A Ⓚ	SBC1040	BUTTON, INPUT
70A Ⓢ	SBC1040-1	BUTTON, INPUT
71 Ⓚ	SGXUV650-KE2	FRONT GRILLE (L)
71 Ⓢ	SGXUV650-SE2	FRONT GRILLE (L)
75 Ⓚ	SBN1089-3	KNOB, REC
75 Ⓢ	SBN1089-4	KNOB, REC
76	SJT30543-V	CONNECTOR(5P)
77	SUW3126	ANGLE
78	SHW82S25A	WASHER
79	ESA335029B	REC SELECTOR SW

EXPLODED VIEW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A
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D
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F
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H
•For (XA, PA) and (PE) areas.
•For (XA ,PA) and (PE) areas.
•For(XA,PA) and (PE) areas.
•For (XL) area only.
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●ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	UPC4570C	I.C. PHONO EQ
IC301	UPC4570C	I.C. TONE CONTROL
IC401	AN7062N	I.C. V.AMP
IC501	SVI3205	I.C. P.AMP/C.AMP
IC751	M5218P	I.C. ACTIVE SERVO
TRANSISTORS		
Q101	2SK170BL	TRANSISTOR
Q102	2SK170BL	TRANSISTOR
Q103	2SK170BL	TRANSISTOR
Q104	2SK170BL	TRANSISTOR
Q401	2SA1123R	TRANSISTOR
Q402	2SA1123R	TRANSISTOR
Q403	2SC1685NCQRS	TRANSISTOR
Q404	2SC1685NCQRS	TRANSISTOR
Q405	2SC2631-Q	TRANSISTOR
Q406	2SC2631-Q	TRANSISTOR
Q407	2SC3311A-Q	TRANSISTOR
Q408	2SC3311A-Q	TRANSISTOR
Q409	2SA1309Q	TRANSISTOR
Q410	2SA1309Q	TRANSISTOR
Q411	2SC2631-Q	TRANSISTOR
Q412	2SC2631-Q	TRANSISTOR
Q413	2SA1123R	TRANSISTOR
Q414	2SA1123R	TRANSISTOR
Q415	2SC3944AQRS	TRANSISTOR
Q416	2SC3944AQRS	TRANSISTOR
Q417	2SA1535AQRS	TRANSISTOR
Q418	2SA1535AQRS	TRANSISTOR
Q501	2SA992EFP	TRANSISTOR
Q502	UN4112TA	TRANSISTOR
Q751	2SC3944AQRS	TRANSISTOR
Q752	2SA1535AQRS	TRANSISTOR
DIODES		
D101	MA165	DIODE
D102	MA165	DIODE
D401	MA167	DIODE
D402	MA167	DIODE
D403	MA4036MTA	DIODE
D404	MA4036MTA	DIODE
D405	MA165	DIODE
D406	MA165	DIODE
D407	MA165	DIODE
D408	MA165	DIODE
D409	MA29WA	DIODE
D501	MA165	DIODE
D503	MA4160M	DIODE
D601	LN018454PH	DIODE, L.E.D
D602	MA4033	DIODE
D603	LN121456PH	DIODE, L.E.D
D604	LN121456PH	DIODE, L.E.D
D605	LN121456PH	DIODE, L.E.D
D606	LN121456PH	DIODE, L.E.D
D608	LN121456PH	DIODE, L.E.D
D609	LN021455PH	DIODE, L.E.D
D610	LN021455PH	DIODE, L.E.D
D614	LN121456PH	DIODE, L.E.D
D615	LN121456PH	DIODE, L.E.D
D616	LN121456PH	DIODE, L.E.D
D617	LN121456PH	DIODE, L.E.D
D618	LN121456PH	DIODE, L.E.D
D619	LN121456PH	DIODE, L.E.D
D624 ⚠	SVD1SR35200A	DIODE
D702 ⚠	SVDS10VB20F	DIODE
D703	MA4160M	DIODE
D704	MA4160M	DIODE
D751	MA4180-M	DIODE
D752	MA4180-M	DIODE
D753	MA165	DIODE
VARIABLE RESISTORS		
VR201	EWJKXA090B15	V.R. MAIN VOL
VR202	EVH0YA015G15	V.R. BALANCE
VR301	EWCRYA023C15	V.R. TONE
VR302	EWCRYA023C15	V.R. TONE
VR401	EVND4AA00B52	V.R. I.C.Q ADJUST
VR402	EVND4AA00B52	V.R. I.C.Q ADJUST
THERMISTORS AND VARISTORS		
TH201	ERTD2WHL104S	THERMISTOR
TH202	ERTD2WHL104S	THERMISTOR
TH401	ERTD2WHL104S	THERMISTOR
TH402	ERTD2WHL104S	THERMISTOR
COILS AND TRANSFORMERS		
L1 ⚠ (EG, EI)	SLQZ650MH49	CHOKE COIL
L101 (EG, EI)	SLM1Z33	MPX COIL
L102 (EG, EI)	SLM1Z33	MPX COIL
L501	SLQY07G-50	COIL
L502	SLQY07G-50	COIL
L503	SLQY18G-20	COIL
L504	SLQY18G-20	COIL
L505 (EG, EI)	SLQY07G-50	COIL
L506 (EG, EI)	SLQY07G-50	COIL
L507 (EG, EI)	SLQY07G-50	COIL
L508 (EG, EI)	SLQY07G-50	COIL
T11 ⚠ (E, EG, EF, EH) (EB, EI)	SLT5Q154	POWER TRANSFORMER
T11 ⚠ (EK, XL)	SLT5Q155	POWER TRANSFORMER
T11 ⚠ (XA, PA, PE)	SLT5Q156	POWER TRANSFORMER
FUSES		
F1 ⚠ (EK, XL)	XBA2C25TB0	FUSE, T2.5A 250V
F1 ⚠ (E, EG, EF, EH) (EB, EI, XA) (PA, PE)	XBA2C31TB0	FUSE 250V, T3.15A
F2 ⚠ (XA, PA, PE)	XBA2C63TB0	FUSE 250V, T6.3A
SWITCHES		
S1-1	SSH6002	PUSH SWITCH, PHONO
S1-2	SSH6002	PUSH SWITCH, TUNER
S1-3	SSH6002	PUSH SWITCH, CD
S1-4	SSH6002	PUSH SWITCH, AUX
S1-5	SSH6002	PUSH SWITCH, TAPE2/EXT
S1-6	SSH6002	PUSH SWITCH, TAPE1/DAT
S12 ⚠ (XA, PA, PE)	ESE37263	SW, VOLTAGE SELECTOR
S3-1	ESA2682	SWITCH, REC SELECTOR
S3-2	ESA335029B	SWITCH, REC SELECTOR
S4	SSH3704	SWITCH, PHONO SELECTOR
S5	SSH1215	SWITCH, CD DIRECT
S6	SSH3704	SWITCH, LOUDNESS
S7	SSH3704	SWITCH, SUBSONIC
S8	SSH1218	SWITCH, TONE CONTROL
S9-1	SSH2115	SWITCH, SP MAIN
S9-2	SSH2115	SWITCH, SP REMOTE
S11 ⚠ (E, EG, EK, EF) (EH, EB, EI) (XL)	ESB8249V	SW, POWER
S11 ⚠ (XA, PA, PE)	SSH1201	SW, POWER
RELAYS		
RLY501	SSY126	RELAY

■ RESISTORS AND CAPACITORS

Notes : ＊ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
＊ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System of Resistor

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Cip Resistor			
ERJ : Cip Resistor			

Numbering System of Capacitor

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001µF)	Tolerance	Peculiarity
ECEA	50	M	330	
Type	Voltage (50V)	Pecliarity	Value (33µF)	

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : $^{+80}_{-20}$ %
ECQM : Poyester	50 : 50V	05 : 50V	
ECQP : Polypropylene	2H : 500V	2A : 100V	J : ±5%
ECG : Ceramic	1 : 100V	1J : 63V	G : ±2%
ECEA N : Non Polar Electrolytic	KC : 400V AC		F : ±1%
QCU : Ceramic (Chip Type)	KC : 125V AC		C : ±0.25pF
ECUX : Ceramic (Chip Type)	(UL)		D : ±0.5pF
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

- ● Capacity values are in microfarads (µF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- ● Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R101	ERDS2TJ102	1K 1/4
(EG, EI)		
R102	ERDS2TJ102	1K 1/4
(EG, EI)		
R103	ERDS2TJ102	1K 1/4
(EG, EI)		
R104	ERDS2TJ102	1K 1/4
(EG, EI)		
R105	ERDS2TJ473	47K 1/4
R106	ERDS2TJ473	47K 1/4
R107	ERDS2TJ221	220 1/4
R108	ERDS2TJ221	220 1/4
R109	ERDS2TJ220	22 1/4
R110	ERDS2TJ220	22 1/4
R111	ERD25FJ332	3.3K 1/4
R112	ERD25FJ332	3.3K 1/4
R113	ERDS2TJ332	3.3K 1/4
R114	ERDS2TJ332	3.3K 1/4
R115	ERD25FJ332	3.3K 1/4
R116	ERD25FJ332	3.3K 1/4
R117	ERDS2TJ151	150 1/4
R118	ERDS2TJ151	150 1/4
R119	ERDS2TJ100	10 1/4
R120	ERDS2TJ100	10 1/4
R121	ERDS2TJ101	100 1/4
R122	ERDS2TJ101	100 1/4
R123	ERDS2TJ151	150 1/4
R124	ERDS2TJ151	150 1/4
R125	ERDS2TJ682	6.8K 1/4
R126	ERDS2TJ682	6.8K 1/4
R127	ERDS2TJ823	82K 1/4
R128	ERDS2TJ823	82K 1/4
R129	ERDS2TJ334	330K 1/4
R130	ERDS2TJ334	330K 1/4
R131	ERDS2TJ561	560 1/4
R132	ERDS2TJ561	560 1/4
R201	ERDS2TJ102	1K 1/4
(EG, EI)		
R202	ERDS2TJ102	1K 1/4
(EG, EI)		
R203	ERDS2TJ102	1K 1/4
(EG, EI)		
R204	ERDS2TJ102	1K 1/4
(EG, EI)		
R205	ERDS2TJ102	1K 1/4
(EG, EI)		
R206	ERDS2TJ102	1K 1/4
(EG, EI)		
R207	ERDS2TJ102	1K 1/4
(EG, EI)		
R208	ERDS2TJ102	1K 1/4
(EG, EI)		
R209	ERDS2TJ102	1K 1/4
(EG, EI)		
R210	ERDS2TJ102	1K 1/4
(EG, EI)		
R211	ERDS2TJ473	47K 1/4
R212	ERDS2TJ473	47K 1/4
R213	ERDS2TJ183	18K 1/4
R214	ERDS2TJ183	18K 1/4
R215	ERDS2TJ824	820K 1/4
R216	ERDS2TJ824	820K 1/4
R219	ERD25FJ272	2.7K 1/4
R220	ERD25FJ272	2.7K 1/4
R221	ERDS2TJ102	1K 1/4
(EG, EI)		
R222	ERDS2TJ102	1K 1/4
(EG, EI)		
R223	ERDS2TJ102	1K 1/4
(EG, EI)		
R224	ERDS2TJ102	1K 1/4
(EG, EI)		
R301	ERD25FJ561	560 1/4
R302	ERD25FJ561	560 1/4
R303	ERDS2TJ823	82K 1/4
R304	ERDS2TJ823	82K 1/4
R305	ERDS2TJ224	220K 1/4
R306	ERDS2TJ224	220K 1/4
R307	ERDS2TJ392	3.9K 1/4
R308	ERDS2TJ392	3.9K 1/4
R309	ERDS2TJ223	22K 1/4
R310	ERDS2TJ223	22K 1/4
R311	ERDS2TJ102	1K 1/4
R312	ERDS2TJ102	1K 1/4
R313	ERDS2TJ562	5.6K 1/4
R314	ERDS2TJ562	5.6K 1/4
R315	ERD25FJ392	3.9K 1/4
R316	ERD25FJ392	3.9K 1/4
R317	ERD25FJ223	22K 1/4
R318	ERD25FJ223	22K 1/4
R319	ERDS2TJ183	18K 1/4
R320	ERDS2TJ183	18K 1/4
R401	ERDS2TJ122	1.2K 1/4
R402	ERDS2TJ122	1.2K 1/4
R403	ERDS2TJ823	82K 1/4
R404	ERDS2TJ823	82K 1/4
R405	ERD25FJ272	2.7K 1/4
R406	ERD25FJ272	2.7K 1/4
R407	ERD25TJ104	100K 1/4
R408	ERD25TJ104	100K 1/4
R409	ERDS2TJ561	560 1/4
R410	ERDS2TJ561	560 1/4
R411 ⚠	ERD25FJ470	47 1/4
R412 ⚠	ERD25FJ470	47 1/4
R415	ERDS2TJ182	1.8K 1/4
R416	ERDS2TJ182	1.8K 1/4
R417	ERDS2TJ391	390 1/4
R418	ERDS2TJ391	390 1/4
R419 ⚠	ERD25FJ101	100 1/4
R420 ⚠	ERD25FJ101	100 1/4
R421	ERDS2TJ223	22K 1/4
R422	ERDS2TJ223	22K 1/4
R423 ⚠	ERD25FJ821	820 1/4
R424 ⚠	ERD25FJ821	820 1/4
R425	ERDS2TJ223	22K 1/4
R426	ERDS2TJ223	22K 1/4
R427 ⚠	ERD25FJ101	100 1/4
R428 ⚠	ERD25FJ101	100 1/4
R429 ⚠	ERD25FJ2R2	2.2 1/4
R430 ⚠	ERD25FJ2R2	2.2 1/4
R431 ⚠	ERD25FJ2R2	2.2 1/4
R432 ⚠	ERD25FJ2R2	2.2 1/4
R433 ⚠	ERD25FJ101	100 1/4
R434 ⚠	ERD25FJ101	100 1/4
R435	ERDS2TJ103	10K 1/4
R436 ⚠	ERD25FJ470	47 1/4
R437	ERDS2TJ473	47K 1/4

Ref. No.	Part No.	Value.
R438 ⚠	ERD25FJ6R8	6.8 1/4
R439 ⚠	ERD25FJ6R8	6.8 1/4
R501	ERDS2TJ392	3.9K 1/4
R502	ERDS2TJ392	3.9K 1/4
R503	ERDS2TJ121	120 1/4
R504	ERDS2TJ121	120 1/4
R505	ERDS2TJ392	3.9K 1/4
R506	ERDS2TJ392	3.9K 1/4
R507	ERDS2TJ121	120 1/4
R508	ERDS2TJ121	120 1/4
R509	ERF2AKR10P	0.1 2
R510	ERF2AKR10P	0.1 2
R511	ERF2AKR10P	0.1 2
R512	ERF2AKR10P	0.1 2
R513 ⚠	ERD25FJ100	10 1/4
R514 ⚠	ERD25FJ100	10 1/4
R515 ⚠	ERD25FJ100	10 1/4
R516 ⚠	ERD25FJ100	10 1/4
R517 ⚠	ERD25FJ1R0	1 1/4
R518 ⚠	ERD25FJ1R0	1 1/4
R519 ⚠	ERD25FJ100	10 1/4
R520 ⚠	ERD25FJ100	10 1/4
R521 ⚠	ERDS1FJ100	10 1/2
R522 ⚠	ERDS1FJ100	10 1/2
R523	ERG2SJ331H	330 2
R524	ERG2SJ331H	330 2
R525	ERG2ANJP102S	1K 2
R526	ERDS2TJ223	22K 1/4
R527	ERDS2TJ223	22K 1/4
R528	ERDS2TJ824	820K 1/4
R529	ERDS2TJ124	120K 1/4
R531 ⚠	ERDS1FJ100	10 1/2
R532 ⚠	ERDS1FJ100	10 1/2
R601	ERDS2TJ471	470 1/4
R602	ERDS2TJ471	470 1/4
R603	ERDS2TJ221	220 1/4
R604	ERDS2TJ471	470 1/4
R605	ERDS2TJ221	220 1/4
R613 ⚠	ERDS1FJ180	18 1/2
R701 ⚠	ERD25FJ151	150 1/4
R702 ⚠	ERD25FJ151	150 1/4
R703 ⚠	ERDS1FJ682	6.8K 1/2
R704 ⚠	ERDS1FJ682	6.8K 1/2
R751	ERDS2TJ223	22K 1/4
R752	ERDS2TJ223	22K 1/4
R753	ERDS2TJ102	1K 1/4
R754	ERDS2TJ153	15K 1/4
R755	ERDS2TJ823	82K 1/4
R756	ERDS2TJ153	15K 1/4
R757	ERDS2TJ102	1K 1/4
R758	ERDS2TJ102	1K 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKWNS103ZV	0.01
C1 ⚠	ECKWNS103ZVS	0.01
(E, EG, EK, EF)		
(EH, EB, EI)		
(XL)		
C101	RCBS1H120JLY	12P 50
(EG, EI)		
C102	RCBS1H120JLY	12P 50
(EG, EI)		
C103	ECQM1H103JZ	0.01 50
C104	ECQM1H103JZ	0.01 50
C105	ECCD1H820K	82P 50
C106	ECCD1H820K	82P 50
C107	ECEA0JU222	2200 6.3
C108	ECEA0JU222	2200 6.3
C109	ECQM1H222JZ	0.0022 50
C110	ECQM1H222JZ	0.0022 50
C111	ECQM1H122JZ	0.0012 50
C112	ECQM1H122JZ	0.0012 50
C113	ECQM1H103JZ	0.01 50
C114	ECQM1H103JZ	0.01 50
C115	ECQM1H393JZ	0.039 50
C116	ECQM1H393JZ	0.039 50
C117	ECEA1HK010	1 50
C118	ECEA1HK010	1 50
C119	ECQM1H472JZ	0.0047 50
C120	ECQM1H472JZ	0.0047 50
C121	ECKD1H103PF	0.01 50
C122	ECKD1H103PF	0.01 50
C203	RCBC1H101KBY	100P 50
(EG, EI)		
C204	RCBC1H101KBY	100P 50
(EG, EI)		
C205	RCBC1H101KBY	100P 50
(EG, EI)		
C206	RCBC1H101KBY	100P 50
(EG, EI)		
C207	RCBC1H101KBY	100P 50
(EG, EI)		
C208	RCBC1H101KBY	100P 50
(EG, EI)		
C209	RCBC1H101KBY	100P 50
(EG, EI)		
C210	RCBC1H101KBY	100P 50
(EG, EI)		
C211	RCBC1H101KBY	100P 50
(EG, EI)		
C212	RCBC1H101KBY	100P 50
(EG, EI)		
C213	ECQM1H563JV	0.056 50
C214	ECQM1H563JV	0.056 50
C215	ECQM1H563JV	0.056 50
C216	ECQM1H563JV	0.056 50
C217	RCBC1H101KBY	100P 50
(EG, EI)		
C218	RCBC1H101KBY	100P 50
(EG, EI)		
C219	RCBC1H101KBY	100P 50
(EG, EI)		
C220	RCBC1H101KBY	100P 50
(EG, EI)		
C301	ECEA1HPS3R3	3.3 50
C302	ECEA1HPS3R3	3.3 50
C303	ECCD1H101K	100P 50
C304	ECCD1H101K	100P 50
C305	ECCD1H820K	82P 50
C306	ECCD1H820K	82P 50
C307	ECEA1VPS4R7	4.7 35
C308	ECEA1VPS4R7	4.7 35
C309	ECCD1H390K	39P 50
C310	ECCD1H390K	39P 50
C311	ECEA1CPS100	10 16
C312	ECEA1CPS100	10 16
C313	ECQM1H823JZ	0.082 50
C314	ECQM1H823JZ	0.082 50
C315	ECQM1H153JZ	0.015 50
C316	ECQM1H153JZ	0.015 50
C317	ECQM1H183JZ	0.018 50
C318	ECQM1H183JZ	0.018 50
C319	ECQM1H182JZ	0.0018 50
C320	ECQM1H182JZ	0.0018 50
C401	ECEA1HPS3R3	3.3 50
C402	ECEA1HPS3R3	3.3 50
C403	ECKD1H271KB	270P 50
C404	ECKD1H271KB	270P 50
C405	ECEA1CPS220	22 16
C406	ECEA1CPS220	22 16
C407	ECCD1H820K	82P 50
C408	ECCD1H820K	82P 50
C409	ECCD1H100KC	10P 50
C410	ECCD1H100KC	10P 50
C411	ECKD1H681K	680P 50
C412	ECKD1H681K	680P 50
C413	ECCD2H070D	7P 500
C414	ECCD2H070D	7P 500
C415	ECQM1H102JZ	0.001 50
C416	ECQM1H102JZ	0.001 50
C417	ECEA1HK010	1 50
C418	ECEA1HK010	1 50
C419	ECCD2H680K	68P 500
C420	ECCD2H680K	68P 500
C421	ECCD2H680K	68P 500
C422	ECCD2H680K	68P 500
C423	ECKD1H333PF	0.033 50
C424	ECKD1H333PF	0.033 50
C425	ECEA2AU100	10 100
C427	ECKD1H223PF	0.022 50
C429	ECEA1HK010	1 50
C430	ECEA1HK010	1 50
C501	ECEA0JPS101B	100 6.3
C502	ECEA0JPS101B	100 6.3
C503	ECEA0JPS101B	100 6.3
C504	ECEA0JPS101B	100 6.3
C505	ECKD1H223PF	0.022 50
(E, EG, EF, EH)		
(EB, EI, XA)		
(PA, PE)		
C505	ECKD1H473ZF	0.047 50
(EK, XL)		
C506	ECKD1H223PF	0.022 50
(E, EG, EF, EH)		
(EB, EI, XA)		
(PA, PE)		
C506	ECKD1H473ZF	0.047 50
(EK, XL)		
C507	ECEA0JPS101B	100 6.3
C508	ECEA1HU470	47 50
C509	ECEA1HN100S	10 50
C513	ECKD1H223PF	0.022 50
(E, EG, EF, EH)		
(EB, EI, XA)		
(PA, PE)		
C513	ECKD1H473ZF	0.047 50
(EK, XL)		
C514	ECKD1H223PF	0.022 50
(E, EG, EF, EH)		
(EB, EI, XA)		
(PA, PE)		
C514	ECKD1H473ZF	0.047 50
(EK, XL)		
C515	ECKD1H473ZF	0.047 50
(EK, XL)		
C516	ECKD1H473ZF	0.047 50
(EK, XL)		
C517	ECKD1H473ZF	0.047 50
(EK, XL)		
C518	ECKD1H473ZF	0.047 50
(EK, XL)		
C521	ECQM1H333JZ	0.033 50
(EG, EI)		
C522	ECQM1H333JZ	0.033 50
(EG, EI)		
C523	ECKD1H102MD	0.001 50
(EG, EI)		
C524	ECKD1H102MD	0.001 50
(EG, EI)		
C525	ECQM1H333JZ	0.033 50
(EG, EI)		
C526	ECQM1H333JZ	0.033 50
(EG, EI)		
C527	ECKD1H102MD	0.001 50
(EG, EI)		
C528	ECKD1H102MD	0.001 50
(EG, EI)		
C605	ECEA1CU471	470 16
C701	ECEA1JPS3R3B	3.3 63
C702	ECEA1JPS3R3B	3.3 63
C705	ECET1JV103LM	10000 63
C706	ECET1JV103LM	10000 63
C708 ⚠	ECKD2H103PE	0.01 500
(E, EK, EF, EH)		
(EB, XL, XA)		
(PA, PE)		
C708 ⚠	ECQE2104KS	0.1 250
(EG, EI)		
C751	ECEA1EK100	10 25
C752	ECEA1EK100	10 25
C753	ECEA1EK100	10 25

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C754	ECEA1EK3R3B	3.3 25	C755	ECEA1EK3R3B	3.3 25	C756	ECKD1H821KB	820P 50
						C757	ECKD1H103PF	0.01 50
						C758	ECKD1H103PF	0.01 50

●PACKING PARTS LIST

Ref. No.	Part No.	Description
PACKING MATERIAL		
P1 Ⓚ (E, EG, EK, EH) (EB, EI, XL) (XA, PA, PE)	SPG6386	PACKING CASE
P1 Ⓚ (EF)	SPG6387	PACKING CASE
P1 Ⓢ (E, EG, EK, EH) (EB, EI, XL) (XA, PA, PE)	SPG6388	PACKING CASE
P1 Ⓢ (EF)	SPG6389	PACKING CASE
P2	SPS5257	PAD
P3	SPS5258	PAD
P4	SPS5185	PAD
P5 Ⓚ	SPP730	PROTECTION COVER
P5 Ⓢ	SPP705	PROTECTION COVER
P6	SKL312	INSULATOR
ACCESSORIES		
A1 (E, EF, EH, EB)	SQF13375	INSTRUCTION BOOK
A1 (EG)	SQF13376	INSTRUCTION BOOK
A1 (EK, XL)	SQF13377	INSTRUCTION BOOK
A1 (EI)	SQF13378	INSTRUCTION BOOK
A1 (XA)	SQF13379	INSTRUCTION BOOK
A1 (PA, PE)	SQF13380	INSTRUCTION BOOK
A2 ⚠ (E, EG, EF, EH) (EB, EI)	SFDAC05E03	POWER CORD
A2 ⚠ (XA, PA, PE)	SJA168	POWER CORD
A2 ⚠ (XL)	SJA173	POWER CORD
A2 ⚠ (EK)	SJA193	POWER CORD
A3 ⚠ (XA, PA, PE)	RJP120ZBS-H	AC PLUG ADAPTOR

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F880509600 TM/TW

ORDER NO. AD8904116S9

Service Manual

Supplement

Amplifier

SU-V650

Color

(S) ....Silver Type
(K) ....Black Type

Stereo Integrated Amplifier

Area

Color	Area
(S)(K)	(E) ....Continental Europe.
(S)(K)	(Ei) ....Italy.
(S)(K)	(EG).........F.R.Germany.
(S)(K)	(EB) ....Belgium.
(S)(K)	(EK).........United Kingdom.
(S)(K)	(EF) ....France.
(S)(K)	(EH).........Holland.
(S)(K)	(XL) ....Australia.
(S)(K)	(XA).........Asia,Latin America, Middle Near East, Africa and Oceania.
(S)(K)	(PA).........Far East PX.
(S)(K)	(PE) ....European Military.

Please file and use this supplement manual together with the Service Manual for Model No. **SU-V650**, Order No. **AD8805088C9**.
This supplement is issued to correct a mistake in a part number on page **25**.

Ref. No.	Wrong Part No.	Correct Part No.	Part Name & Descriptions		Remarks
C703	———	ECEA1JU330	E. Capacitor, 63 V 33 µF		Addition
C704	———	ECEA1JU330	E. Capacitor, 63 V 33 µF		Addition

Technics

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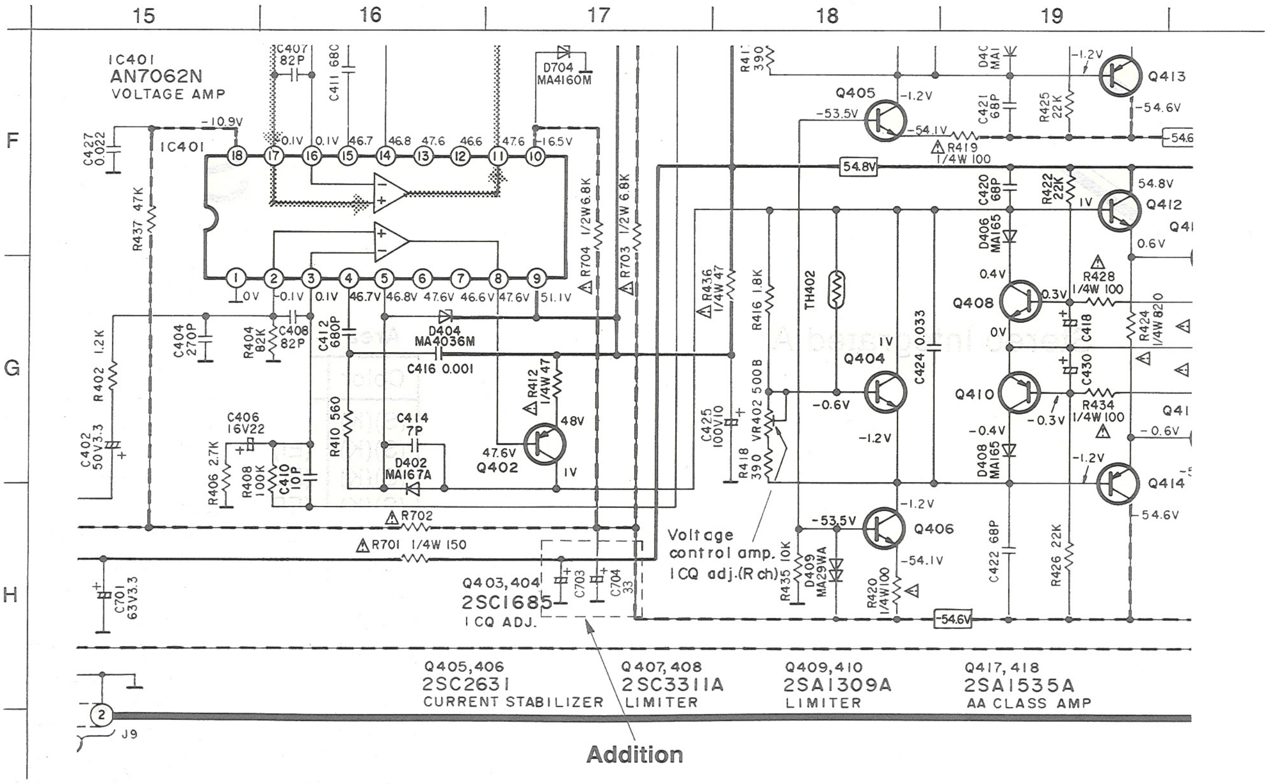
Central P.O. Box 288, Osaka 530-91, Japan

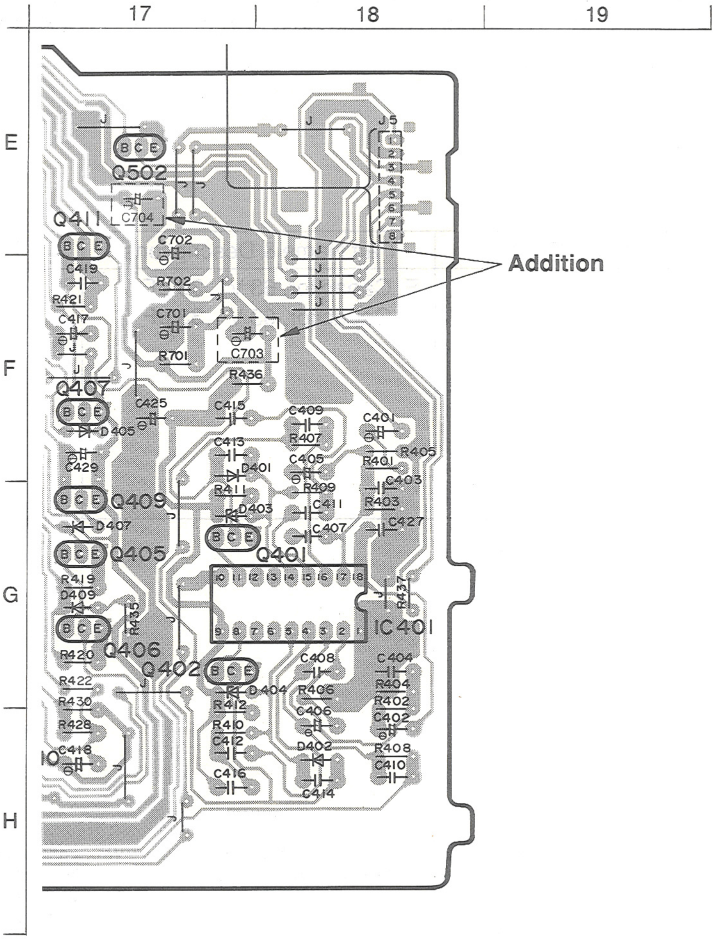
Panasonic Tokyo Sales Department
Matsushita Electric Industrial Co., Ltd.
World Trade Center Bldg., 4-1, Hamamatsu-cho,
2-chome, Minato-ku, Tokyo 105, Japan

■ SCHEMATIC DIAGRAM (See page 11)


15
16
17
18
19
F
G
H
IC401
AN7062N
VOLTAGE AMP
D704
MA4160M
Q405
Q413
Q412
Q408
Q404
Q410
Q402
Q406
Q414
D404
MA4036M
C416 0.001
D402
MA167A
VR402 500B
TH402
R701 1/4W 150
R702
C701
63V3.3
J9
Voltage control amp.
ICQ adj.(R ch)
Q403,404
2SC1685
ICQ ADJ.
Q405,406
2SC2631
CURRENT STABILIZER
Q407,408
2SC3311A
LIMITER
Q409,410
2SA1309A
LIMITER
Q417,418
2SA1535A
AA CLASS AMP

Addition

■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (See page 15)


17
18
19
E
F
G
H
Q502
C704
Q411
C702
R702
C701
C703
R701
R436
Q407
Q409
Q405
Q406
Q402
Q401
IC401
J5

Addition

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